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SKILL AND SCHOLARSHIP AS IDEALS IN MEDICAL GRADUATE EDUCATION *

C. M. JACKSON, M.S., M.D.

MINNEAPOLIS

Even in ancient times, physicians recognized the advantages of a division of labor, allowing concentration of effort in a relatively narrow field of medicine. The ancient Babylonians, according to Garrison, had a physician for every disease, and in the Code Hammurabi (2250 B. C.) medical fees were already regulated by law. Likewise among the Egyptians, as shown by the Ebers papyrus, medicine was highly specialized as early as 1550 B. C. Herodotus states that in the fifth century B. C. (in Egypt):

> Each physician applies himself to one disease only, and not more. All places abound in physicians; some physicians are for the eyes, others for the head, others for the teeth, others for the intestines, and others for internal disorders.

Although medical specialism was thus practiced by the ancients, who undoubtedly developed a high degree of skill in certain respects, for example, in operations for cataract by the Hindus, it soon reached its limits within comparatively narrow bounds. Throughout the ages, down to modern times, specialism, like medicine in general, made relatively slow progress, and for the same reason. The art of medicine necessarily remained empiric, awaiting the development of the fundamental sciences, physics, chemistry and biology. Before this, it was impossible for medicine to make real and rapid progress as an applied science.

With the rapid development of medicine during the past century, specialism has become increasingly necessary, since no man could possibly cover thoroughly more than a small portion of this immense field. While contributing greatly to the advancement of medicine, however, the increasing tendency to specialism in clinical medicine carries with it certain obvious disadvantages and dangers. From the point of view of the individual specialist, the tendency to narrowness through isolation is evident. From the point of view of the general public, the cost of medical service by isolated specialists is becoming burdensome, if not prohibitive.

These difficulties, both from the professional and from the economic point of view, present a serious problem for consideration. The most promising solution appears to be the group system, whereby a staff of specialists may cooperate to practice medicine more efficiently. This means team-work associated with specialism, a principle which has been clearly realized and successfully carried out only in recent times. The Mayo Clinic is generally recognized as a pioneer in this work. The same principle has been followed with success in many other clinics, both public and private, and the movement is extending rapidly.

The tendency toward the group system in medical practice will doubtless receive an immense impetus from the experience during the war, as has been emphasized recently by Dodson. The excellent results obtained by this system in the numerous military and naval hospitals is an object lesson on a scale hitherto unknown. The thousands of medical practitioners who have thereby learned the increased efficiency of military medicine under this plan will doubtless desire to continue it on returning to civil practice. On the other hand, the advantages of the plan will not be lost on the millions of soldiers and sailors, who will naturally demand similar provision for medical service on their return to civil life. We may therefore expect in the near future to see medical groups organized for this purpose in every community able to support a hospital.

It is unquestionably true that preventive medicine will become increasingly prevalent, but this will by no means tend to minimize the importance of the group system. Public hygiene and sanitation likewise can be administered best by an organization of experts in various lines who must cooperate in the solution of the problems of preventive medicine. Moreover, by no means all forms of disease are preventable, even in theory. Curative medicine must therefore remain important, whether under private or state administration, and will certainly reach its greatest efficiency under the group system of organization.

Since well trained specialists are essential to the success of this plan, we may anticipate an increasing demand for them in the near future. Here also the war has revealed our present deficiencies. As Munson, Bispham and others have noted, a large proportion of our alleged specialists were found more or less incompetent in the military medical service.

Our present supply of real specialists thus is far below that indicated by the medical directory. In ophthalmology, for example, according to data cited by Reber, there are now in the United States about 5,000 listed ophthalmologists, of whom perhaps one fourth are really competent specialists. Edward Jackson estimates that about 10,000 trained ophthalmologists are needed in this country, or one to every 10,000 of population. Even if this number of ophthalmologists were now available, it is estimated that about 400

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* Read at a meeting of the staff and students of the Mayo Foundation for Medical Education and Research at Rochester, Minn., April 23, 1919.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of references and other matter. The complete article appears in the author's reprints.

new men should be added each year in order to keep up the supply. The demand for well trained specialists in other lines is equally great.

To meet this demand, how are the specialists to be trained? In the first place, the plan of gradually narrowing from a general practice to a special field, a favorite method in the past, is now recognized as totally inadequate, unless supplemented by special training. For this special training, the opportunities offered by hospitals must be considered. Those hospitals with sufficient clinical facilities and with staffs efficiently organized are able to offer attractive educational opportunities to younger men who are willing to act as assistants during their period of apprenticeship. As has been pointed out by Welch, Barker and others, such positions as those of resident physician or surgeon in some of the larger hospitals represent, up to the present time, the best opportunities for capable young men who are ambitious to rise to eminence in the various phases of clinical medicine. Warner has recently emphasized the opportunities and responsibilities of the hospitals in the education of clinical specialists.

Unfortunately, such opportunities for hospital positions are now very limited in number, as well as defective in most cases from the educational point of view. This becomes apparent when one asks: "What training is needed for those who desire to attain leadership as clinical specialists in surgery, internal medicine, pediatrics, obstetrics, ophthalmology or other departments?" For the ideal education of specialists in medicine, the following conditions appear to me essential: (1) an adequate general medical education, including a hospital internship; (2) advanced work in the fundamental sciences; (3) advanced clinical instruction and training in the desired specialty; (4) training in research methods, and (5) adequate certification of proficiency. Let us consider these principles and the possibility of their realization under present conditions.

PRELIMINARY MEDICAL EDUCATION

An adequate general medical education is clearly an indispensable prerequisite for training in any branch of medical specialism. With a weak foundation, there can be no satisfactory superstructure. A graduate of a poor medical school cannot hope to become a competent specialist, unless he is willing first to go back and rebuild his primary medical education. Cases in which native genius is able to overleap the barrier of deficient preliminary education are rare.

Furthermore, a general hospital internship for at least a year, now recognized as an essential prerequisite for general practice, is even more important to give the broad, comprehensive clinical knowledge necessary for successful specialism. A narrow specialism will inevitably defeat its own ends. To avoid this obvious danger, the tradition still generally current in the medical profession requires several years of preliminary general practice. Recently, however, there has been marvelous improvement in clinical instruction in the better medical schools, making it possible (as Edward Jackson, Todd and others have pointed out) for the student to secure a better all-round clinical training by the end of his intern year than could formerly be obtained by several years of general practice.

There are certainly good educational and social reasons why the graduate medical training for specialism should begin as soon as possible. The graduate of five or ten years' standing has lost much of his mental elasticity, and usually finds it very difficult to resume serious and intensive study. A graduate of a first-class medical school, with a subsequent hospital internship, may therefore safely proceed at once to the desired line of specialization.

ADVANCED WORK IN THE FUNDAMENTAL SCIENCES

Following his hospital internship, the first step needed by the prospective specialist is to strengthen his knowledge of the fundamental sciences underlying the clinical application in his chosen field. This principle must be emphasized, as it is frequently overlooked or ignored.

Nowadays a preliminary undergraduate training in the fundamental sciences of anatomy, physiology and pathology is universally recognized as essential for ordinary medical practice. But it is often forgotten that within the necessarily brief time allotted to these laboratory subjects in the medical curriculum, only their most elementary phases can be considered. These may be sufficient for the general practitioner, but are certainly inadequate for the specialist. Just as a general knowledge of the basic sciences is essential to their successful application in general practice, so is a more detailed first-hand knowledge of the underlying sciences equally necessary for intelligent specialization in a narrower clinical field. The logical graduate medical course must therefore repeat the order of sequence well recognized in the undergraduate curriculum: first, the fundamental sciences; second, their clinical application. The wouldbe specialist is prone to put the clinical cart before the laboratory horse, however, just as the shortsighted medical freshman undergraduate would like (and formerly was permitted) to attend clinics from the beginning of the medical course.

The principle that clinical medicine is an applied science is thus even more true for specialism than for general practice. Before the wouldbe clinical specialist has acquired a more thorough knowledge of the corresponding fundamentals, he simply does not have the science to apply. Without this science, the resultant training and practice will be empiric rather than scientific. Until this elemental principle is clearly recognized, we cannot hope for a satisfactory solution of the problem of graduate medical education for specialism. "Back to the laboratory" must be the slogan for the wouldbe specialist in the first stage of his graduate training.

Granting the principle, where can the requisite fundamental science be obtained? Practically the only places where the necessary facilities are now available are the laboratories of the medical schools of the stronger universities. Some of the larger hospitals have fairly good laboratories of pathology and bacteriology, but few have any one available who is capable of guiding the candidate in a systematic advanced study, even where there are laboratory facilities. The other laboratories necessary for graduate training are not provided by hospitals.

On account of the great expense involved, it likewise appears utterly impossible for the independent postgraduate medical schools to establish satisfactory laboratories for advanced scientific work. While these schools may serve a useful purpose in functioning as "undergraduate repair shops" (Flexner), their facilities for the adequate training of competent specialists are decidedly limited.

Even the universities which have adequate laboratory staffs and facilities for this purpose have rarely given much thought to the matter of providing the opportunities necessary for the training of clinical specialists in the fundamental sciences. Careful planning is required to give the best results. The course for each student should be arranged by conference between those in charge of the various clinical specialties and those in charge of the corresponding laboratory subjects involved. The essential point is that each student should have his work well outlined and supervised and that he should be provided with the necessary laboratory material and facilities.

Systematic provision should be made in a larger number of universities for at least this fundamental laboratory training needed by clinical specialists. Even the two-year medical schools, or other schools lacking sufficient clinical facilities for complete graduate training, could without much difficulty organize an excellent year's fundamental course for this purpose. A discussion of the curriculum requirements for graduate training in the various specialties may be found in papers by Todd, Sedgwick, Litzenberg, Edward Jackson, Duane, Shambaugh, Wishart and others. The broader phases of the subject are emphasized by Christian, Barker, Lyon and Wilson.

If the student could also have an opportunity to serve as a teaching assistant in one of the fundamental laboratories during the earlier part of his graduate work, so much the better. The road to specialism through an apprenticeship in one of the basic sciences, long recognized in Europe, has thus a substantial justification. As Melzer has well said:

> The best physician of the future will be the brainy man who has spent many years in studying the methods employed in acquiring knowledge in the pure medical sciences, and then in applying all his mental energies to a broad study of disease.

The clinical graduate student should also profit greatly from his association with the laboratory sciences in ways other than the acquisition of indispensable information. He should also obtain what is really even more important, an inspiration of scientific ideals and a preliminary training in scientific methods. He should furthermore avoid the fallacious idea that he can leave the laboratory behind him when he has finished therein his preliminary training. Rather will he find it necessary, if his clinical career is to be progressive and fruitful, to maintain permanent relations with the basic medical sciences. Unless he catches the scientific spirit, and realizes that all medicine is essentially merely one phase of biology in a broad sense, his sojourn in the laboratory will have been in vain.

CLINICAL TRAINING FOR SPECIALISM

Following the preparatory work in the fundamentals, the clinical training for specialism is naturally of paramount importance. The apprenticeship method by which most specialists in the past have obtained this training in connection with private or public clinics has varied exceedingly in the opportunities offered and the results obtained. At best, while offering excellent practical training, it has usually been deficient in the requisite fundamental laboratory instruction above mentioned. Moreover, it has usually tended to become more or less routine in character, particularly when there is a large volume of clinical work to be done, with an inadequate number of assistants.

The objections to overloading the student with routine clinical work (during the internship) are thus emphasized by Dodson:

> The amount of routine work now demanded of the intern in many hospitals so consumes his time as to make it very difficult and often impossible for any but the exceptional student to prepare a thesis. This ought not, however, so to be. The intern should have time to study the cases assigned to him thoroughly and carefully, and also pursue exhaustively the study of some disease or condition as presented by some interesting case, or group of cases, to explore the literature relating to that topic, and to set down in orderly fashion the results of his investigation. No instruction or experience in his career is so potent an educational measure as this one of independent creative work.

The argument naturally applies even more strongly in the cases of graduate students beyond the internship year who are preparing themselves to qualify as specialists.

Even in our own university work, where the educational principles are especially emphasized, the graduate fellows in clinical departments have sometimes found that the large amount of routine work they are required to perform leaves insufficient time and energy for the study necessary to meet the requirements of the graduate school.

While on the one hand a thorough, practical training in the clinical work is indispensable, it is clearly evident that this phase of the work may easily be overemphasized, leading to a neglect of the scholarship requirements.

REQUIREMENTS IN SCHOLARSHIP

The question may fairly be raised as to whether these scholarship requirements are really necessary for those seeking to qualify for leadership in clinical specialism. Or are these requirements merely "academic frills" of no real value? The requirements are based on the theory that technical proficiency alone is insufficient to train the highest type of physician; that practical experience must be supplemented by theoretical study; that the ideal of skill must be accompanied by the ideal of scholarship, if we are to train clinical specialists of the highest type, who can render the greatest service to mankind, in research as well as in practice. Let us see whether there is any adequate basis for these assumptions.

From the broader point of view, considering education as the sum total of all factors which train man for better adjustment with his environment, both skill and scholarship are essential. Activity without intelligence is as fruitless as intelligence without activity. Knowing and doing must go hand in hand, if education is to be efficient. This principle is now generally recognized in undergraduate medical education. Is not the power of independent thought and productive scholarship even more important in graduate medical education? On this principle are based the graduate school requirements of thesis, foreign language and history of medicine. Let us briefly consider each of these in turn. The thesis involves a thorough training in scientific research methods, and the application of these methods in the solution of some medical problem. The emphasis on this phase of graduate work, this training in productive scholarship, seems to me justified in two ways.

In the first place, we all recognize that, in spite of great advances in the past, medical science is only at the threshold of its future possibilities. Suffering

humanity cannot wait for medical discoveries to come by chance. The state should therefore encourage and train research workers in every branch of clinical medicine, as well as in the more fundamental sciences. This is, I believe, the highest function of the university graduate school. Although only a few of the graduate students will actually develop into investigators of the first rank, even these few will fully justify all the effort and expense involved in their education. While the skilled specialist in his practice may relieve hundreds, his research resulting in even a comparatively small advancement in his subject will, through the entire medical profession, reach and benefit thousands and millions of human beings.

In the second place, training in research methods, as involved in the preparation of a creditable thesis, is also exceedingly valuable even for the larger number who will never become primarily researchers (in the narrower sense), but who will rather devote themselves to specialized clinical practice.

As Allbutt reminds us:

> We are prone to forget that research has two purposes, results being but one of them; the other purpose is method, which is itself an education in flexibility, ingenuity, dexterity and perseverance.

Even the "purely clinical" specialist will thus profit greatly by a thorough training in scientific research methods. This training in research methods is directly beneficial to the clinical practitioner because the practice of medicine is, or should be, essentially scientific research. As Barker expresses it:

> Each new patient is a problem for investigation; the clinician applies the methods he has learned and tries to solve it.

The importance of the research spirit in medical education has likewise been emphasized by Pearce and others. In its broader aspects, this subject is receiving increasing recognition as a principle of education in general, and may, let us hope, be extended throughout our entire educational system, from the kindergarten to the university. From this broader point of view, Donaldson's conception of the research spirit may be cited:

> Research is a frame of mind. A man may have little leisure and trifling resources, may never have published, but if he examines his world in a questioning spirit, if he carries with him not only conclusions, but the observations on which they rest, if he refuses to pound square facts into the round holes that he happens to have in hand, he has attained illumination. The spirit of research is nothing mysterious or remote; it is everyday hard sense. Unfortunately, that does not make it common, but it does make it attainable.

I have dwelt thus somewhat at length on the research spirit, because if it is so important to medicine in general, it should clearly be a very essential part of the highest phase of medical education, the graduate training of specialists. And the thesis is merely the concrete evidence that the student has caught the research spirit, that he has had adequate training in research methods and in their successful application in the solution of some definite medical problem.

As a corollary to the thesis requirement comes the necessity for a study of the medical literature. This involves a reading knowledge of the principal foreign languages. One foreign language is already an admission requirement to the undergraduate work in medical schools of the better class. The addition of a reading knowledge in the second foreign language is not a burdensome requirement, and is an essential prerequisite for efficient scholarship. It is evident that one cannot well invade the unknown until he has learned what is already known in that particular phase of the subject. To do this, he should be able to read at least the three modern languages (English, French and German) in which the greater part of the original work in medical science is published. Translations are usually inadequate and frequently unavailable, even in abstract.

Even the genius of John Hunter did not prevent him from serious error (as cited by Jacobi) in denying the occurrence of visceral syphilis, which had already been demonstrated by Morgagni and Paracelsus. Numerous similar instances could be cited in every branch of medicine, indicating the necessity of a reading knowledge of foreign languages for efficient medical research. A knowledge of languages is necessary even for practitioners who desire merely to keep abreast of medical progress; and it is indispensable for those who aspire to leadership.

Associated with the thesis and language requirements is the subject of the history of medicine. Candidates for the higher degrees in medicine at Minnesota are required to know the history of medicine in general, and particularly that of the major subject in which the degree is sought. This requirement is based on the necessity for a background of historical knowledge, without which it is impossible to get an adequate conception of present conditions. The history of medicine teaches the evolutionary stages by which progress has been made in the past, and reveals pitfalls which must be avoided in the future. Probably in no department of human activity is a knowledge of its historical development more important than in medicine. The neglect of this subject in the undergraduate medical curriculum merely serves to emphasize the necessity for its requirement in the graduate work.

CERTIFICATION

It is not sufficient merely to provide adequate training for medical specialists. If they are to serve the public, some means must be devised to certify their proficiency. Realizing this necessity, the American Board for Ophthalmic Examinations (representing the national ophthalmic societies) examines those who have had the minimum training required for specialists in ophthalmology and awards certificates to those successful in passing the examination. Similarly membership in the American College of Surgeons indicates the recognition of ability in the practice of surgery. While certificates and titles of this character will undoubtedly be useful in helping to designate those at least moderately well qualified to practice in their special fields, it would seem that for those who have devoted a period of three years or more to a systematic course of graduate training and study a university degree is a more appropriate form of recognition and certification. No other institutions are so well qualified as the university to set standards which must command respect.

Just what this degree should be is a matter which has been much discussed, and concerning which there is still no unanimity of opinion. In the University of Colorado School of Medicine, where graduate work in ophthalmology has been developed through the pioneer efforts of Edward Jackson, the degree of Doctor of

Ophthalmology has been awarded to several candidates since 1913. Arnold proposes the degrees of Master of Science in Medicine (M.S.Med.) and Doctor of Science in Medicine (D.S.Med.), which in scholarship are essentially equivalent to the well known graduate degrees, Master of Arts (A.M.) and Doctor of Philosophy (Ph.D.). In addition, he proposes a degree of Doctor of the Practice of Medicine (D.P.Med.). "The requirements for this degree should be essentially the same as for the D.S.Med., except that the time devoted to research and to the preparation of a thesis would be devoted to the development of higher technic and skill in practice."

The latter proposal, to establish a practitioner's degree without research or thesis, is open to serious objections. It would tend to sacrifice scholarship in favor of skill, and thus to yield an unbalanced and undesirable type of specialism. Rather would it seem better to insist that no specialistic training without scholarship requirements involving at least some original work should be crowned by a university graduate degree.

Judging from our experience at Minnesota, graduate students in clinical branches will fall into three groups: Some will be unable to meet the thesis and associated requirements. This deficiency will debar them from being candidates for the higher degrees, irrespective of their technical skill in routine clinical work. Others will be able to produce a fairly creditable thesis, exhibiting some capacity for independent thought, though distinctly below the standard of scholarship ordinarily required for the doctor's degree in the graduate school. These may properly be awarded the degree of Master of Science (M.S.) in the special field. The third class, who measure fully up to the highest standards of both skill and scholarship, are awarded the degree of Doctor of Philosophy (Ph.D.) in the special field involved. We formerly awarded the degree of Doctor of Science (D.Sc.) for the same purpose, but abandoned it in recognition of the growing tendency to use this for an honorary degree.

The use of the M.S. and Ph.D. degrees (qualified or unqualified) for graduate work in the medical sciences is in accordance with the recommendations of the Committee on Degrees (A. C. Eycleshymer, chairman) at the recent meeting of the Association of American Medical Colleges in Chicago in March, 1919. The Ph.D. degree, as pointed out by Shambaugh, Vincent, Lyon and others, has the advantage of being thoroughly established, carrying with it everywhere the certification of ability in original thought and training in scientific methods. The qualification of the degree by the addition of the special field of clinical medicine involved should add to this a further recognition of practical ability in that professional field. It should indicate to the world that the recipient of this degree has undergone a long and careful training, both theoretical and practical; that he has met the most rigid tests both of skill and of scholarship; and that he is well qualified for leadership in his chosen field of specialism in medicine.

CONCLUSIONS

We must recognize an increasing need for medical specialism, especially in connection with the development of the group system in medical practice. For the training of efficient specialists, adequate facilities are in general available only in the medical schools of the stronger universities. These schools should organize graduate work for systematic training of medical specialists along broad lines, including the necessary foundation in fundamental scientific work, practical clinical instruction and training in research methods. Work thus planned in accordance with the ideals of skill and scholarship will yield the most efficient type of specialist. Successful candidates may approximately receive the degree of Master of Science or Doctor of Philosophy, specifying the field of proficiency.

EXPERIMENTS TO DETERMINE MODE OF SPREAD OF INFLUENZA*

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BOSTON

The experiments here described were performed on an island in Boston Harbor, on volunteers obtained from the Navy. The work was conducted by a group of officers detailed for that purpose, from the U. S. Navy and the U. S. Public Health Service, consisting of Dr. G. W. McCoy, director of the Hygienic Library, Dr. Joseph Goldberger, Dr. Leake, and Dr. Lake, all on the part of the U. S. Public Health Service; and cooperating with those medical officers, was a group also detailed for this purpose on the part of the U. S. Navy, consisting of Dr. J. J. Keegan, Dr. De Wayne Richey and myself.

The work itself was conducted at Gallops Island, which is the quarantine station of the Port of Boston, and peculiarly well fitted for operations of this kind, serving adequately for the purposes of isolation, observations, and maintenance of the large group of volunteers and personnel necessary to take care of them.

The volunteers were all of the most susceptible age, mostly between 18 and 25, only a few of them around 30 years old; and all were in good physical condition. None of these volunteers, 100 all told in number, had "influenza;" that is, from the most careful histories that we could elicit, they gave no account of a febrile attack of any kind during the winter, except a few who were purposely selected, as having shown a typical attack of influenza, in order to test questions of immunity, and for the purpose of control.

Now, we proceeded rather cautiously at first by administering a pure culture of bacillus of influenza, Pfeiffer's bacillus, in a rather moderate amount, into the nostrils of a few of these volunteers.

These early experiments I will not stop to relate, but I will go at once to what I may call our Experiment 1.

EXPERIMENTS AT GALLOPS ISLAND

As the preliminary trials proved negative, we became bolder, and selecting nineteen of our volunteers, gave each one of them a very large quantity of a mixture of thirteen different strains of the Pfeiffer bacillus, some of them obtained recently from the lungs at necropsy; others were subcultures of varying age, and each of the thirteen had, of course, a different history. Suspen-

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* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

* This paper and those by Drs. Frost, Park and Conner, which follow are part of a symposium on "Influenza." The remaining papers and the discussion will appear in the issues for August 9 and 16.

sions of these organisms were sprayed with an atomizer into the nose and into the eyes, and back into the throat, while the volunteers were breathing in. We used some billions of these organisms, according to our estimated counts, on each one of the volunteers, but none of them took sick.

Then we proceeded to transfer the virus obtained from cases of the disease; that is, we collected the material and mucous secretions of the mouth and nose and throat and bronchi from cases of the disease and transferred this to our volunteers. We always obtained this material in the same way: The patient with fever, in bed, has a large, shallow, traylike arrangement before him or her, and we washed out one nostril with some sterile salt solution, using perhaps 5 c.c., which is allowed to run into this tray; and that nostril is blown vigorously into the tray. This is repeated with the other nostril. The patient then gargles with some of the solution. Next we obtain some bronchial mucus through coughing, and then we swab the mucous surface of each nares and also the mucous membrane of the throat. We place these swabs with the material in a bottle with glass beads, and add all the material obtained in the tray. This is the stuff we transfer to our volunteers. In this particular experiment, in which we used ten volunteers, each of them received a comparatively small quantity of this, about 1 c.c. sprayed into each nostril and into the throat, while inspiring, and on the eye. None of these took sick. Some of the same material was filtered and instilled into other volunteers but produced no results.

Now, I may mention at this point that the donors were all patients with influenza in Boston hospitals; sometimes at the U. S. Naval Hospital at Chelsea, sometimes at the Peter Bent Brigham Hospital, where we had access to suitable cases. We always kept in mind the fact that we have no criterion of influenza; therefore I would like to emphasize the fact that we never took an isolated case of fever, but selected our donors from a distinct focus or outbreak of the disease, sometimes an epidemic in a school with 100 cases, from which we would select four or five typical cases, in order to prevent mistakes in diagnosis of influenza.

Now, thinking that perhaps the failure to reproduce the disease in the experiments that I have described was due to the fact that we obtained the material in the hospitals in Boston, and then took it down the bay to Gallops Island, which sometimes required four hours before our volunteers received the material, and believing that the virus was perhaps very frail, and could not stand this exposure, we planned another experiment, in which we obtained a large amount of material, and by special arrangements, rushed it down to Gallops Island; so that the interval between taking the material from the donors and giving it to our volunteers was only one hour and forty minutes, all told. Each one of these volunteers in this experiment, ten in number, received 6 c.c. of the mixed stuff that I have described. They received it into each nostril; received it in the throat, and on the eye; and when you think that 6 c.c. in all was used, you will understand that some of it was swallowed. None of them took sick.

Then, thinking perhaps it was not only the time that was causing our failures, but also the salt solution —for it is possible that the salt solution might be inimical to the virus—we planned another experiment, to eliminate both the time factor and the salt solution, and all other outside influences. In this experiment we had little cotton swabs on the end of sticks, and we transferred the material directly from nose to nose and from throat to throat, using a West tube for the throat culture, so as to get the material not only from the tonsils, but also from the posterior nasopharynx.

We used nineteen volunteers for this experiment, and it was during the time of the outbreak, when we had a choice of many donors. A few of the donors were in the first day of the disease. Others were in the second or third day of the disease. None of these volunteers who received the material thus directly transferred from cases took sick in any way. When I say none of them took sick in any way, I mean that after receiving the material they were then isolated on Gallops Island. Their temperature was taken three times a day and carefully examined, of course, and under constant medical supervision they were held for one full week before they were released, and perhaps used again for some other experiment. All of the volunteers received at least two, and some of them three "shots" as they expressed it.

Our next experiment consisted in injections of blood. We took five donors, five cases of influenza in the febrile stage, some of them again quite early in the disease. We drew 20 c.c. from the arm vein of each, making a total of 100 c.c., which was mixed and treated with 1 per cent. of sodium citrate. Ten c.c. of the citrated whole blood were injected into each of the ten volunteers. None of them took sick in any way. Then we collected a lot of mucous material from the upper respiratory tract, and filtered it through Mandler filters. While these filters will hold back the bacteria of ordinary size, they will allow "ultramicroscopic" organisms to pass. This filtrate was injected into ten volunteers, each one receiving 3.5 c.c. subcutaneously, and none of these took sick in any way.

The next experiment was designed to imitate the natural way in which influenza spreads, at least the way in which we believe influenza spreads, and I have no doubt it does—by human contact. This experiment consisted in bringing ten of our volunteers from Gallops Island to the U. S. Naval Hospital at Chelsea, into a ward having thirty beds, all filled with influenza.

We had previously selected ten of these patients to be the donors; and now, if you will follow me with one of our volunteers in this ward, and remember that the other nine were at the same time doing the same thing, we shall have a picture of just what was happening in this experiment:

The volunteer was led up to the bedside of the patient; he was introduced. He sat down alongside the bed of the patient. They shook hands, and by instructions, he got as close as he conveniently could, and they talked for five minutes. At the end of the five minutes, the patient breathed out as hard as he could, while the volunteer, muzzle to muzzle (in accordance with his instructions, about 2 inches between the two), received this expired breath, and at the same time was breathing in as the patient breathed out. This they repeated five times, and they did it fairly faithfully in almost all of the instances.

After they had done this for five times, the patient coughed directly into the face of the volunteer, face to face, five different times.

I may say that the volunteers were perfectly splendid about carrying out the technic of these experiments. They did it with a high idealism. They were inspired with the thought that they might help others. They went through the program

in a splendid spirit. After our volunteer had had this sort of contact with the patient, talking and chatting and shaking hands with him for five minutes, and receiving his breath five times, and then his cough five times directly in his face, he moved to the next patient whom we had selected, and repeated this, and so on, until this volunteer had had that sort of contact with ten different cases of influenza, in different stages of the disease, mostly fresh cases, none of them more than three days old.

We will remember that each one of the ten volunteers had that sort of intimate contact with each one of the ten different influenza patients. They were watched carefully for seven days—and none of them took sick in any way.

EXPERIMENTS AT PORTSMOUTH

At that point, the holidays came, our material was exhausted, and we temporarily suspended our work. In fact, we felt rather surprised and somewhat perplexed, and were not sure as to the next way to turn, and we felt it would be better to take a little breathing spell and a rest.

We started another set of experiments in February that lasted into March, again using fifty volunteers carefully selected from the Deer Island Naval Training Station. These experiments I will not give in detail. They would take too long. They were simply designed and the program was carefully planned, but the way matters turned out became very confusing and perplexing. I will give two instances to explain what I mean by that; and I give them because they are exceedingly instructive and very interesting.

In February and March, the epidemic was on the wane. We had difficulty in finding donors. We were not sure of our diagnosis, having no criterion of influenza. We therefore felt very fortunate when we learned of an outbreak that was taking place at the Portsmouth Naval Prison, only a few hours north of Boston. We at once loaded a couple of automobiles filled with our volunteers, and rushed up to Portsmouth, and there repeated many things that I have described in our first set of experiments. At Portsmouth, out of a large number of cases, we made our selections carefully, taking the typical cases for donors, and transferring the material directly to our volunteers. In about thirty-six hours, half of the number we exposed came down with fever and sore throat, with hemolytic streptococci present, and doubtless as the causal agent. All the clinicians who saw these cases in consultation agreed with us that they were ordinary cases of sore throat.

Another incident: One of our officers, Dr. L., who had been in intimate contact with the disease from early in October, collected material from six healthy men at the Portsmouth Navy Yard who were thought might be in the period of incubation of the disease—we were trying to get material as early as possible, because all the evidence seems to indicate that the infection is transmittable early in the disease. None of the six men came down with influenza, but Dr. L. came down in thirty-six hours, with a clinical attack of influenza, although he had escaped all the rest of the outbreak.

CONCLUSION

I think we must be very careful not to draw any positive conclusions from negative results of this kind. Many factors must be considered. Our volunteers may not have been susceptible. They may have been immune. They had been exposed as all the rest of the people had been exposed to the disease, although they gave no clinical history of an attack.

Dr. McCoy, who with Dr. Richey, did a similar series of experiments on Goat Island, San Francisco, used volunteers who, so far as known, had not been exposed to the outbreak at all, also had negative results, that is, they were unable to reproduce the disease. Perhaps there are factors, or a factor, in the transmission of influenza that we do not know.

As a matter of fact, we entered the outbreak with a notion that we knew the cause of the disease, and were quite sure we knew how it was transmitted from person to person. Perhaps, if we have learned anything, it is that we are not quite sure what we know about the disease.

[A complete account of the experiment is being published by the U. S. Public Health Service.]

THE EPIDEMIOLOGY OF INFLUENZA*

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The history of influenza so far as it is known, that is, for several centuries, comprises a series of long cycles in which great pandemics alternate with periods of relative quiescence, the length of cycles as measured by the intervals between pandemics being usually a matter of decades. The special characteristics of influenza pandemics are their wide and rapid extension, their high attack rates, and great effect on general mortality rates. Since these cycles are undoubtedly of fundamental significance in the natural history of influenza any proper discussion of the epidemiology of the disease should cover at least one full cycle, preferably the last, from 1889 to the present. The material for such a discussion must, however, be collected from many and diverse sources and laboriously fitted together, since there is no concrete specific and continuous record of the prevalence or mortality of influenza during such a period of years.

LACK OF SPECIFIC RECORDS

During great epidemics there are abundant, if not exact records of prevalence, and the resulting mortality can be determined with fair precision, even though a large proportion of the deaths are classified under diagnoses other than influenza. In the intervals between epidemics influenza becomes inextricably confused with other respiratory diseases, having a general clinical resemblance but no definite etiologic entity, so that the record of prevalence and even of mortality is virtually lost. The first requisites for epidemiologic study; namely, clear differential diagnosis and systematic records of occurrence, are therefore lacking in influenza.

In the absence of these essential records, statistics of mortality from the group comprising influenza and all forms of pneumonia afford, perhaps, the nearest approximation to a record of influenza. It is not intended to suggest that the mortality from this group of diseases furnishes in any sense a *measure* of the prevalence of influenza, but only that it furnishes an

* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

index, since it is well established that the epidemic prevalence of influenza markedly affects the mortality from this group of diseases, and since it is at least probable that, even in nonepidemic periods, there may be some intimate and constant relation between the prevalence of influenza and the mortality from pneumonia.

The following discussion, which is necessarily confined to a few broad outlines, is accordingly based on records of mortality from influenza and pneumonia for a series of years; statistics of general mortality during the recent epidemic, and limited morbidity statistics.

INFLUENZA AND PNEUMONIA MORTALITY IN MASSACHUSETTS, 1887-1916

Table 1 and Chart 1 show for Massachusetts, a state in which continuous records are available, the number of deaths and the death rates per hundred thousand from influenza and from all forms of pneumonia, by months, from 1887 to 1916, inclusive.

Chart 1 shows clearly the effect of the epidemic of 1889-1892, developing in three distinct phases, the first phase culminating in January, 1890; the second in April and May, 1891; and the third in January, 1892. It will be noted that the mortality was higher in 1891 than in 1890, still higher in 1892, and that in 1893, although no distinct epidemic occurred, the pneumonia mortality for the year was still higher than in 1892. This corresponds to the experience in England according to Parsons,[1] and apparently represents the general experience in other countries, with some differences in chronology and relative severity of the several phases of the epidemic.

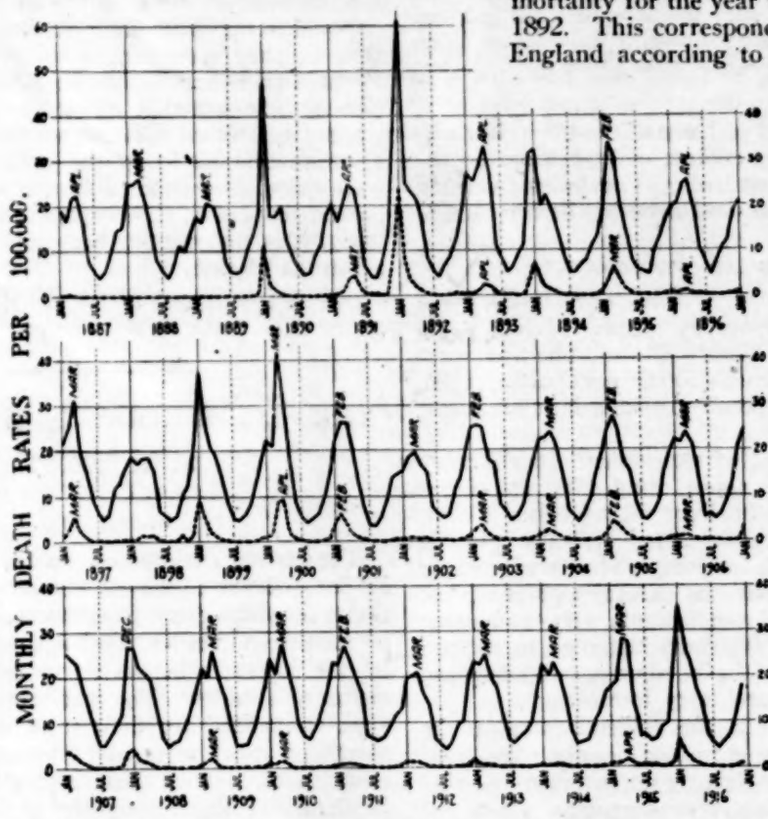

Chart 1.—Monthly death rates per hundred thousand of population, from pneumonia (all forms) and from influenza, in Massachusetts, from 1887 to 1916, inclusive.

COMPARABLE STATISTICS FOR 1910-1918

As comparable statistics for Massachusetts in 1917 and 1918 are not now at hand, it is necessary to turn to other sources for the record of these years. The U. S. Census Bureau has very kindly furnished to me, from tables prepared for publication in the 1917 mortality statistics, the number of deaths by months during 1917 from pneumonia and influenza in certain registration states and registration cities of over 100,000 population, thus continuing through that year the records of monthly

1. Parsons, H. Franklin: A Further Report on the Influenza Epidemics of 1889-90, 1891 and 1891-92, Local Government edition, London, 1893.

TABLE 1.—DEATH RATES PER HUNDRED THOUSAND OF POPULATION, FROM PNEUMONIA (ALL FORMS) AND FROM INFLUENZA, IN MASSACHUSETTS, 1887-1916, INCLUSIVE *

		PNEUMONIA											
Year	Total Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
1887	159.0	19.5	16.7	1.9	22.6	16.1	7.7	5.5	4.1	5.6	9.0	14.8	15.3
1888	172.7	24.7	25.1	26.4	21.3	16.4	8.0	5.5	4.0	6.2	11.4	9.8	13.9
1889	156.6	17.9	16.3	21.1	19.8	14.9	7.5	5.3	5.2	5.4	10.6	13.2	19.3
1890	180.6	47.8	17.7	17.6	20.1	12.7	8.5	6.2	4.8	5.0	9.4	11.8	18.3
1891	188.5	30.6	16.4	20.6	25.1	23.9	10.1	5.9	4.0	4.0	7.7	13.8	36.4
1892	213.0	61.5	25.2	23.1	21.4	17.0	8.3	5.4	4.2	6.8	8.5	12.5	19.0
1893	225.8	27.3	25.4	28.6	33.1	27.3	11.1	8.0	5.0	6.1	9.8	14.3	31.9
1894	166.0	32.8	19.9	22.7	18.5	14.0	8.5	5.1	5.1	6.8	8.2	11.3	13.6
1895	184.1	19.1	34.4	30.8	20.9	14.4	7.6	5.6	5.3	4.7	10.5	13.4	17.3
1896	182.0	19.5	20.7	24.9	25.9	18.7	10.3	7.6	4.5	7.6	10.7	12.7	18.8
1897	181.6	21.1	24.9	31.5	19.7	15.2	10.2	7.0	4.5	6.0	11.7	13.1	16.9
1898	150.0	18.8	17.1	18.5	18.7	15.7	6.6	6.0	4.8	5.6	10.6	12.8	21.0
1899	181.3	37.5	25.8	20.6	18.4	14.0	8.9	5.0	4.8	5.8	8.2	13.2	19.0
1900	188.3	22.7	21.1	42.0	30.5	17.6	8.7	5.3	4.3	5.3	6.2	9.9	14.7
1901	167.7	22.6	26.6	26.2	19.9	13.9	7.7	3.4	3.4	5.7	9.1	14.2	15.1
1902	158.9	15.7	18.9	19.9	16.8	15.5	8.0	6.2	5.3	5.7	11.8	14.5	20.6
1903	172.5	25.2	25.8	25.4	18.1	16.8	8.2	7.0	4.5	4.6	7.7	13.3	16.9
1904	172.1	22.6	22.7	24.1	21.2	14.2	6.7	5.9	4.4	6.5	9.4	15.0	19.5
1905	178.3	24.7	27.7	23.6	17.1	15.5	8.5	5.4	4.8	6.2	8.9	15.8	20.0
1906	174.1	22.5	21.9	24.1	21.7	14.9	5.1	6.2	5.0	6.0	9.4	13.8	21.0
1907	180.4	25.5	24.4	23.4	18.3	14.3	9.5	5.1	5.1	7.1	9.3	12.7	26.9
1908	165.8	26.6	22.2	21.1	19.4	13.5	6.6	4.9	5.8	6.4	9.2	12.4	17.6
1909	170.3	72.1	20.0	26.1	20.1	16.0	9.7	5.1	5.0	5.4	8.9	13.6	18.3
1910	197.6	24.1	20.7	27.5	23.3	16.9	9.7	7.3	6.3	9.1	12.3	17.0	23.6
1911	174.4	22.6	27.1	23.9	20.2	16.9	7.2	6.7	6.1	6.7	9.0	11.8	16.2
1912	152.0	19.8	20.2	21.2	16.4	13.3	6.2	5.0	4.1	5.8	9.5	10.5	19.9
1913	172.2	23.5	22.8	24.9	19.3	17.1	10.7	6.2	5.4	6.7	8.3	10.4	16.8
1914	166.0	22.9	20.1	23.2	20.4	15.2	8.2	5.1	5.5	6.0	10.1	12.6	16.8
1915	176.0	17.8	19.3	28.5	27.7	13.6	6.6	7.1	5.8	6.0	8.8	9.8	22.1
1916	176.6	35.6	25.5	23.0	17.3	14.0	7.4	5.3	4.1	5.9	7.6	12.8	18.3

		INFLUENZA											
Year	Total Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.
1887	0.90	0.05	0.14	0.28	0.14	0.05	....	....	....	0.05	0.10	0.05	0.05
1888	0.51	0.14	0.05	0.05	....	0.05	....	....	....	0.05	0.14	....	0.05
1889	1.23	0.09	0.09	0.14	0.14	0.05	0.05	0.05	....	....	0.09	....	0.55
1890	18.31	10.96	2.90	1.43	0.94	0.40	0.36	0.22	0.04	0.18	0.22	0.27	0.40
1891	23.74	0.39	0.39	1.00	3.87	4.65	1.57	0.52	0.52	0.22	0.26	10.08	
1892	41.06	24.33	7.64	3.02	1.83	1.10	0.72	0.51	0.17	0.21	0.38	0.68	0.47
1893	12.27	0.58	0.70	1.20	2.57	2.07	0.46	0.17	0.12	0.04	....	0.46	3.90
1894	14.97	7.41	3.16	1.38	1.09	0.40	0.20	0.16	0.08	0.16	0.20	0.16	0.36
1895	18.10	0.79	4.50	6.97	3.29	1.11	0.36	0.24	0.08	0.08	0.04	0.24	0.36
1896	5.81	0.93	0.62	1.16	1.05	0.46	0.39	0.15	0.12	0.04	0.27	0.19	0.43
1897	14.40	0.83	2.42	5.68	2.50	1.02	0.27	0.15	0.23	0.15	0.27	0.27	0.61
1898	8.56	0.59	0.59	1.56	1.39	1.48	0.37	0.11	0.22	0.07	0.19	0.26	1.82
1899	20.72	9.34	5.81	2.18	1.05	0.51	0.29	0.07	0.04	0.07	0.33	0.18	0.84
1900	25.27	1.21	1.50	9.20	9.23	1.85	0.68	0.21	0.07	0.11	0.11	0.32	0.78
1901	18.94	4.32	6.36	4.08	1.51	0.84	0.46	0.14	0.04	0.21	0.18	0.25	0.77
1902	5.89	0.59	0.87	0.90	0.69	0.73	0.24	0.21	0.14	0.03	0.24	0.45	0.80
1903	12.65	1.57	3.08	3.66	1.61	0.82	0.38	0.14	0.10	0.03	0.21	0.34	0.72
1904	10.26	1.45	2.06	2.80	1.38	0.78	0.27	0.20	0.07	0.10	0.17	0.34	0.64
1905	14.69	2.75	4.58	3.48	1.76	0.86	0.30	0.07	0.07	0.03	0.03	0.20	0.56
1906	6.57	1.13	1.07	1.29	0.78	0.36	0.06	0.19	0.13	0.06	0.16	0.16	1.17
1907	16.13	3.61	3.48	2.28	1.04	0.70	0.22	0.03	0.03	0.03	0.19	0.54	3.80
1908	10.42	4.48	2.10	1.51	0.86	0.31	0.12	0.06	0.03	0.19	0.15	0.22	0.37
1909	7.16	0.76	1.93	2.30	0.88	0.36	0.24	0.03	....	0.03	0.15	0.21	0.27
1910	7.40	1.39	1.01	1.75	1.51	0.53	0.09	0.09	....	0.03	0.21	0.35	0.44
1911	4.63	0.87	0.96	0.90	0.79	0.41	0.03	0.09	....	0.03	0.12	0.06	0.49
1912	6.93	1.46	1.35	1.06	0.60	0.26	0.20	0.17	0.09	0.09	0.26	0.17	1.23
1913	5.75	2.00	0.76	0.85	0.51	0.34	0.14	....	0.17	0.14	0.20	0.25	0.39
1914	3.58	0.75	0.39	0.75	0.64	0.36	0.14	0.06	....	0.06	0.03	0.17	0.25
1915	6.34	0.79	0.60	0.98	1.88	0.49	0.16	0.08	0.05	0.08	0.11	0.22	0.37
1916	14.50	6.32	3.04	1.67	0.75	0.56	0.32	0.16	0.13	0.06	0.16	0.43	0.89

* Compiled from number of deaths as given in Registration Reports, State of Massachusetts, 1887-1916, except data for 1912, from Mortality Statistics, U. S. Census Bureau.

mortality available from published mortality statistics from 1910 to 1916, inclusive; and has also furnished records of deaths in certain of these states and cities, by months, during 1918. The latter figures were compiled and submitted by state and local registrars in compliance with a special request from the director of the census. They are merely provisional and the Census Bureau in no way vouches for their accuracy; but they are believed to be sufficiently exact for present purposes.

Owing to limitations of space, the statistics of only three cities (New York, Cleveland and San Francisco) are presented here. These are, however, fairly representative of the whole group of cities and states for which records are at hand. As may be seen from Table 2 and Chart 2, the mortality from influenza and pneumonia in these cities was fairly regular from 1910 till 1915, as was the case in Massachusetts (Chart 1) and generally throughout the registration area of the United States.

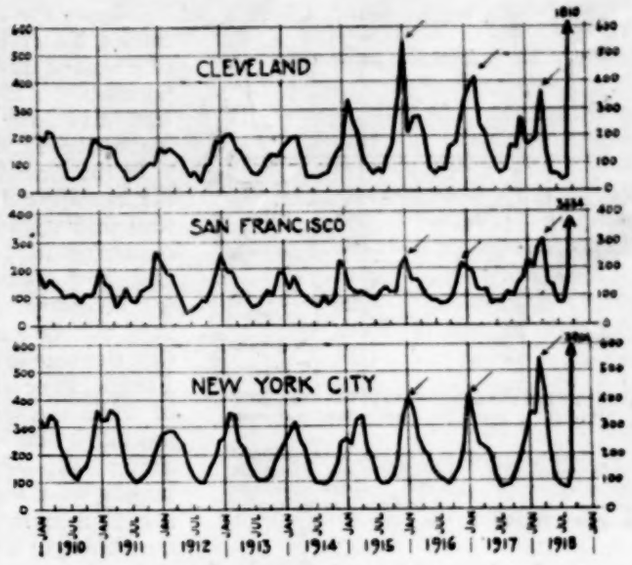

Chart 2.—Annual death rates per hundred thousand from influenza and pneumonia (all forms), by months, 1910-1918, in three American cities.

SIGNIFICANT RISE IN MORTALITY IN DECEMBER, 1915

In December, 1915, and January, 1916, there occurred in New York and Cleveland a sudden sharp rise in mortality. This, though not shown distinctly in San Francisco, was almost universal and synchronous over the whole of the registration area. While this may have no direct significance in relation to the 1918 pandemic, it is at least of interest as indicating the operation of some definite and widespread factor and suggesting in this group of diseases an epidemic tendency which is perhaps not sufficiently appreciated.

In *Public Health Reports* for Jan. 7, 1916, influenza was reported to be epidemic in twenty-three states in all sections of the United States, an epidemic now generally forgotten.

ANOTHER SHARP AND GENERAL RISE IN MORTALITY IN THE SPRING OF 1918

In the spring of 1918, there was another sharp and general rise in mortality from these diseases, clearly evident in Chart 2. In the larger cities on the Atlantic seaboard, this increase occurred generally during January, February and March, when pneumonia mortality normally reaches its maximum, and the increase was not so evident in all these cities as it was in New York City. In the rest of the country, especially in the central and western states, the increase occurred in April, a month during which pneumonia mortality is generally on the decline; and was sufficient to constitute an unmistakable departure from the normal. The increased mortality rate extended quite generally into May and in some areas still longer.

This occurrence has, I believe, a definite significance in relation to a coincident prevalence of influenza, and to the subsequent development of the influenza pandemic. Although there is no definite record of a gen-

TABLE 2.—ANNUAL DEATH RATES FROM INFLUENZA AND PNEUMONIA (ALL FORMS), BY MONTHS, FOR THE YEARS 1910-1918 (INCLUSIVE), IN NEW YORK, SAN FRANCISCO AND CLEVELAND*

Years	Total	Months											
		Jan.	Feb.	Mareh	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						New York							
1910	229.3	327.8	300.2	343.3	303.5	225.4	162.1	125.5	108.0	126.9	154.7	211.6	265.9
1911	217.7	321.3	325.5	359.0	338.7	237.2	137.2	115.8	97.2	107.6	145.0	195.0	240.8
1912	198.6	266.5	284.5	287.9	254.6	238.3	153.5	112.3	99.0	94.9	157.8	178.5	251.6
1913	199.7	265.0	353.0	342.2	242.7	225.1	158.9	113.5	101.9	100.6	118.4	172.9	213.5
1914	184.3	247.3	293.0	319.4	241.8	211.1	131.6	92.5	86.1	89.1	110.0	162.9	234.3
1915	202.7	253.7	282.2	325.4	344.5	212.1	172.0	103.2	89.2	90.8	120.4	167.1	224.4
1916	189.7	402.5	261.7	252.0	210.9	194.6	133.1	113.7	100.5	87.8	116.4	154.0	242.1
1917	191.9	417.9	316.3	237.3	221.2	202.4	122.8	72.6	78.4	89.5	127.6	185.5	237.7
1918	636.4	348.4	339.0	548.0	432.1	201.4	105.4	81.3	71.8	136.2	351.6	1,259.6	549.8
						San Francisco							
1910	128.6	199.9	134.0	168.9	148.2	132.3	101.6	109.8	112.6	87.3	118.2	110.5	118.2
1911	135.7	207.3	150.0	135.6	68.6	91.2	150.0	88.5	83.0	135.0	132.7	144.0	270.9
1912	126.0	236.3	191.6	182.0	131.9	86.9	47.7	51.6	67.9	92.6	84.2	137.5	198.3
1913	139.6	261.7	192.1	194.9	143.5	122.8	91.0	66.8	72.1	99.3	125.5	110.4	194.9
1914	122.6	191.7	130.8	178.5	132.9	107.6	84.1	78.8	63.0	103.1	70.9	97.7	231.0
1915	133.2	214.6	137.4	118.8	125.4	113.6	101.4	90.4	111.0	138.7	116.2	117.4	231.8
1916	133.2	243.9	165.6	162.6	144.3	101.6	84.0	88.9	71.1	76.1	88.9	144.3	271.0
1917	127.5	210.0	185.4	130.0	121.4	125.0	72.3	80.0	77.5	118.8	100.0	144.6	167.5
1918	713.0	231.3	204.3	278.1	310.2	152.6	139.8	78.7	73.8	117.0	3,534.0	2,069.8	1,331.0
						Cleveland							
1910	136.3	198.3	180.0	223.0	213.5	148.3	107.9	54.2	48.2	51.8	85.6	138.0	190.0
1911	106.5	174.3	165.9	164.1	155.0	103.4	77.5	40.5	50.6	67.1	81.0	109.0	93.2
1912	114.6	163.6	141.2	159.7	142.7	126.2	91.7	55.2	75.0	90.6	88.8	110.1	185.4
1913	131.9	179.8	205.1	217.5	152.5	147.4	107.5	68.1	66.6	74.3	115.3	130.9	128.6
1914	117.2	160.1	175.2	197.0	201.8	139.9	53.3	51.6	46.3	50.0	66.4	116.0	143.7
1915	162.7	166.5	323.1	252.6	201.8	109.3	77.4	55.5	78.8	59.2	121.8	170.2	336.8
1916	198.5	545.0	209.2	263.8	266.9	211.2	86.6	57.6	82.1	75.7	153.6	175.0	242.9
1917	210.9	344.0	386.0	415.0	253.8	208.0	145.8	90.2	66.4	72.1	160.0	152.9	267.0
1918	257.1	161.3	158.5	190.4	366.3	142.6	60.0	62.5	43.5	48.0	1,812.0	2,135.0	1,376.0

* Data for years 1910-1916 compiled from Mortality Statistics, U. S. Census Bureau, for those years; data for 1917 from table prepared for publication in 1917 Mortality Statistics, advance sheets being furnished by the Census Bureau; data for 1918 from special reports rendered to Director of the Census by city registrars. Populations used are U. S. Census Bureau midyear estimates.

eralized epidemic of influenza in the United States in the spring of 1918, definite local outbreaks were observed at that time. For example, Vaughan and Palmer[2] have described a mild epidemic prevailing in the Oglethorpe camps in March. The commissioner of health of Chicago[3] states, in his special report on the autumn epidemic in Chicago, that in March, 1918, distinct epidemics resembling influenza were observed in certain groups in that city. Stanley[4] in a recent publication describes three epidemics of influenza occurring in April, October and November, 1918, respectively, in San Quentin prison, California. These three epidemics were quite similar and that of April apparently developed from a newly received inmate, presumably infected in Los Angeles, indicating the presence of the infection there at that time.

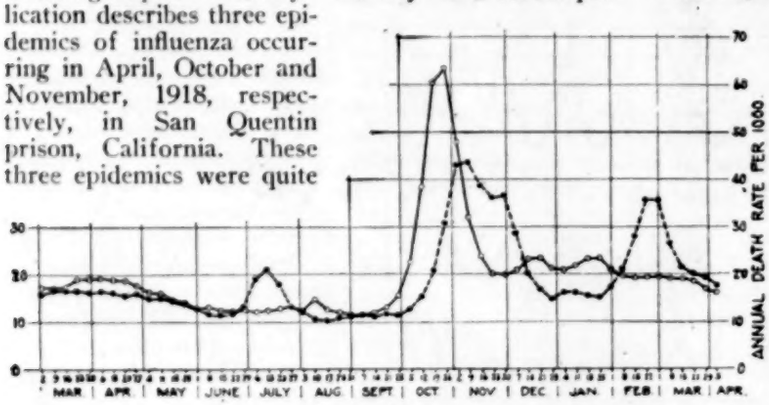

Chart 3.—Annual death rates from all causes, by weeks, March 2, 1918, to April 5, 1919, in forty-five American cities (population, 1918, 22,672,630) and ninety-six large cities of England and Wales (population, 1917, 16,577,344). Continuous line with circles signifies the forty-five American cities, and the broken line with solid dots the ninety-six large cities of England and Wales.

Opie, Freeman and others[5] of the Army Commission, studying pneumonia at Camp Funston, found that recurrent outbreaks of pneumonia observed there in March, April and May, 1918, were definitely associated with coincident epidemics of a mild type of influenza.

The rise in mortality from this group of etiologically heterogeneous diseases in the spring of 1918, is so sudden, so marked, and so general throughout the United States as to point very clearly to the operation of a single definite and specific cause, something largely independent of meteorologic and other local conditions. The observed occurrence of local epidemics of influenza at that time in widely scattered localities, the intimate association established at Camp Funston between the epidemic of influenza and pneumonia, and the subsequent development of the influenza pandemic, all indicate that the increased pneumonia mortality of March and April, 1918, was the consequence of a beginning and largely unnoticed epidemic of influenza, the beginning in this country of the great pandemic which developed in the autumn.

MILD EPIDEMICS OF INFLUENZA IN EUROPE IN APRIL AND MAY, 1918

From various localities in western Europe mild epidemics of influenza are reported in April and May, 1918; and perhaps there may be earlier reports. During June and July extensive epidemics were reported from Great Britain, various parts of continental Europe, China, India, the Philippine Islands and Brazil, with marked effect on general mortality rates in such of these countries for which records are available.

COURSE OF 1918 EPIDEMIC

The course of the epidemic in England and Wales, and in the United States, respectively, is illustrated by Chart 3, which shows the annual death rates from all causes, by weeks, in ninety-six large cities of England and Wales[6] with an aggregate population (1917) of 16,577,344 and in forty-five large American cities[7] aggregating about 22,950,000 population (1918).

In the British cities the epidemic has so far manifested three distinct waves: the first and slightest, in point of mortality, occurring in June and July; the second and most severe in November; the third in February and March. Data which need not be cited here in detail indicate that the course of the epidemic in western Europe, generally, was similar. In cities of India the sequence was similar but the mortality far greater. In the United States the epidemic developed more largely in a single wave, during September, October and November. If, however, the epidemic already mentioned as occurring in the spring be considered the first phase, and the explosive outbreak of the autumn, the second, a third phase or recrudescence is quite evident in many areas, though not shown distinctly in Chart 3, in which are combined a number of widely separated cities the curves of which overlap. In general, this winter recrudescence was less marked in those cities which suffered most severely in the autumn epidemic.

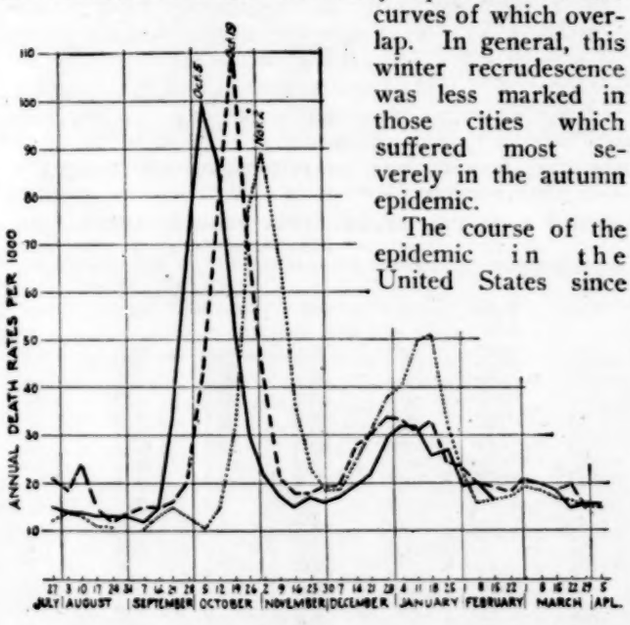

Chart 4.—Annual death rates per thousand from all causes, by weeks, July 27, 1918, to April 5, 1919. The unbroken line is the record of Boston, the dash line of Washington, and the dot line of San Francisco.

The course of the epidemic in the United States since September is already well known and need not be discussed here in detail. The prevalence of a serious epidemic among the civilian population was first recognized in and around Boston about the first of September. Within about two weeks the epidemic was

2. Vaughan, V. C., and Palmer, G. T.: The Communicable Diseases in the National Guard and National Army of the United States During the Six Months from September 29, 1917, to March 29, 1918, Military Surgeon **43**: 392 (Oct.) 1918.
3. Robertson, J. D.: A Report on an Epidemic of Influenza in the City of Chicago in the Fall of 1918, Ed. Series 15, Department of Health, Chicago, 1918.
4. Stanley, L. L.: Influenza at San Quentin Prison, California, Public Health Reports **34**: 996 (May 9) 1919.
5. Opie, E. L.; Freeman, A. W.; Blake, F. G.: Small, J. C., and Rivers, T. M.: Pneumonia at Camp Funston. Report to the Surgeon-General, J. A. M. A. **72**: 108 (Jan. 11) 1919.
6. Weekly Return of Births and Deaths Registered in London and Ninety-Five other Great Towns of England and Wales, London.
7. Weekly Health Index, U. S. Census Bureau, Washington, D. C.

general in cities on the Atlantic seaboard, developing a little later among the cities farther west. Rural districts were usually attacked somewhat later than large cities in the same sections. The sequence of the epidemic in three cities (Boston, Washington and San Francisco) is shown in Chart 4. The interval between the peaks of the epidemic in Boston and San Francisco is four weeks, which is approximately the maximum difference between any two large American cities in this phase of the epidemic.

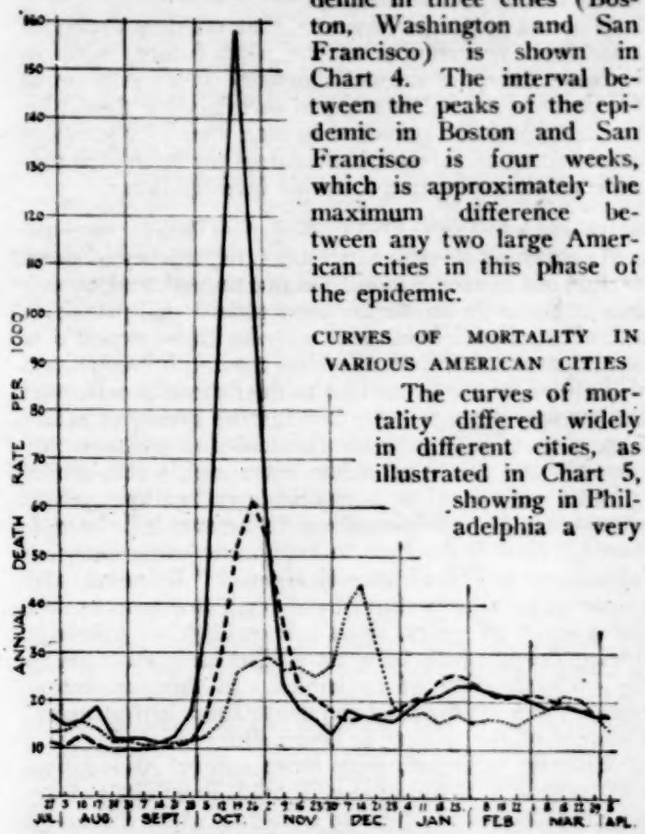

Chart 5.—Annual death rates per thousand from all causes, by weeks, July 27, 1918, to April 5, 1919. The unbroken line is the record of Philadelphia, the dash line of New York, and the dot line of St. Louis.

CURVES OF MORTALITY IN VARIOUS AMERICAN CITIES

The curves of mortality differed widely in different cities, as illustrated in Chart 5, showing in Philadelphia a very explosive and abrupt curve, observed more frequently among cities on the Eastern seaboard; in New York a less explosive curve, with a more prolonged high mortality rate, as observed more commonly in middle western cities, often with a more pronounced recrudescence; in Kansas City a still more gradual curve, declining only slightly after the first wave, and with a severe recrudescence, curves of this general character being more common in the middle west.

TOTAL NUMBER OF DEATHS AMONG THE CIVIL POPULATION

Based on incomplete statistics, which represent, however, all the main geographic divisions of the country, including both urban and rural populations, the deaths among the civil population of this country directly attributable to the epidemic are estimated at not less than 450,000, or more than 4.0 per thousand. This rate exceeds even a liberal estimate of the net excess mortality rate in Massachusetts during the four years (1890-1893) following the influenza outbreak in 1889-1890.

DIFFERENCE IN MORTALITY IN VARIOUS GEOGRAPHIC GROUPS

Classifying the forty-five cities of the Weekly Health Index into three broad geographic groups there is a noticeable difference in mortality. In the cities east of the line of the Appalachians, the excess mortality from pneumonia and influenza during the weeks ending Sept. 14, 1918, to March 1, 1919,[8] was approximately 5.6 per thousand; in cities between the Rocky Mountains and the Appalachians, 4.35; and in those of the Pacific Coast, 5.55 per thousand.

Notwithstanding this general geographic relation, there are notably wide differences in the mortality rates of individual cities in the same section, even between cities close together, differences which are not as yet explained on the basis of climate, density of population, character of preventive measures exercised, or any other determined environmental factor.

More intimate details of epidemiology can be given only the briefest mention here. In order to secure reliable statistics of morbidity, the Public Health Service has made special house-to-house surveys in a number of localities,[9] ascertaining the number of persons affected, the dates of onset and a few other simple facts in accurately enumerated groups representative of the general population. Partial analysis of the results of these surveys, in eight localities,[10] giving an aggregate of 112,958 persons canvassed, show the following chief facts of interest:

RESULTS OF HOUSE-TO-HOUSE SURVEYS

The percentage of the population attacked varied from 15 per cent. in Louisville, Ky., to 53.3 per cent. in San Antonio, Texas, the aggregate for the whole group being about 28 per cent.[11] This agrees with scattered observations in the first phase of the 1889-1890 epidemic, when the attack rate seems to have varied within about these limits. The case incidence was found to be uniformly highest in children from 5 to 14 years old, and progressively lower in each higher age group. It was slightly higher in females than in males of corresponding age; usually higher in the white than the colored population.

The ratio of pneumonia cases to total population varied from 5.3 cases per thousand in Spartanburg to 24.6 per thousand in the smaller towns of Maryland.

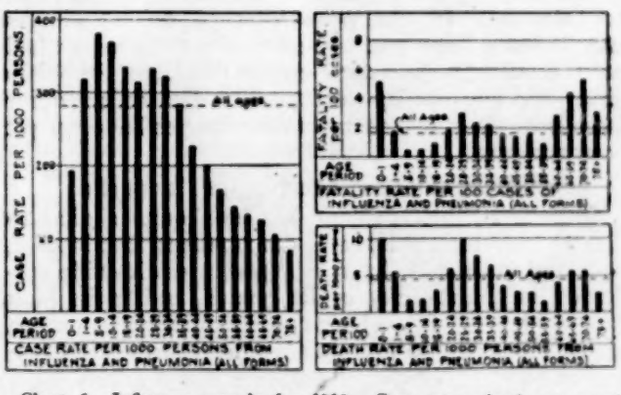
CASE RATE PER 1000 PERSONS
AGE PERIOD
CASE RATE PER 1000 PERSONS FROM INFLUENZA AND PNEUMONIA (ALL FORMS)
FATALITY RATE PER 100 CASES OF INFLUENZA AND PNEUMONIA (ALL FORMS)
DEATH RATE PER 1000 PERSONS FROM INFLUENZA AND PNEUMONIA (ALL FORMS)

Chart 6.—Influenza records for 1918. Case rates, death rates and fatality rates among persons of different ages in certain areas surveyed in Maryland; San Antonio, Texas; San Francisco; New London, Conn.; Louisville, Ky.; Little Rock, Ark., and Spartanburg, S. C.

The pneumonia rate showed little correlation with the influenza attack rate.

8. Summary, Influenza Epidemic, U. S. Census Bureau, Weekly Health Index, March 1.

9. For a description of methods and more detailed statistics of certain localities, compare Public Health Reports **34**:491 (March 14) 1919.

10. Data from surveys of population groups as follows: New London, Conn.; Baltimore; certain smaller towns and rural districts in Maryland; Spartanburg, S. C.; Louisville, Ky.; Little Rock, Ark.; San Antonio, Texas; San Francisco.

11. The surveys were made mostly during December, after the first wave of the epidemic had subsided, but before the second wave. Later figures would add somewhat to the incidence.

The ratio of deaths to population varied from 1.9 per thousand in Spartanburg to 6.8 in Maryland towns. The death rate was by no means parallel to the influenza attack rate, but was correlated closely with the pneumonia rate. In other words, the case fatality of pneumonia tended to be fairly constant, around 30 per cent., except in San Antonio, where it was only 18.5 per cent. The death rate was notably high in children under 1 year old, in adults from 20 to 40, and in persons over 60; higher in males than in females of comparable ages; higher in the white than in the colored.

The case fatality was likewise higher in these age groups: under 1 year, 20 to 40, and over 60 years; and it is this fact, rather than the incidence rates, which determines the death rates in different age groups.

Chart 6 shows the attack rates, death rates and case fatality rates in various age groups.

THE IMPORTANT QUESTION OF IMMUNITY

Concerning the important question of the immunity conferred by an attack of influenza, the evidence is not conclusive, chiefly because of the uncertain differentiation between influenza and other infections. Parsons, from his study of the last epidemic,[1] inclines to the view that an attack of influenza in the earlier years of the epidemic conferred a considerable but not absolute immunity in the later outbreaks.

In Baltimore, where our first canvass of 33,776 people was made between Nov. 20 and Dec. 11, 1918, a second canvass of the same population was made in January to determine the extent of the recrudescence reported in December. Among 32,600 people included in this canvass, 724 cases of influenza were found to have occurred since the previous survey. Of this number 121 cases were reported as second attacks, but on investigation through the attending physicians or by a medical officer, the clinical diagnosis of both attacks as influenza was confirmed in only 26 cases, or 0.37 per cent. of the total, and even in these cases the diagnosis is necessarily uncertain. Considering that 23 per cent. of the population had had influenza prior to December 11, the proportion of second attacks should have been much greater if no immunity had been acquired. A second canvass in San Francisco gave generally similar results. The data collected for a study of this question from other angles have not yet been analyzed.

GENERAL CHARACTERISTICS OF EPIDEMIC

In general, this epidemic has been quite similar to that of 1889-1890 in its early development, first in mild, scattered outbreaks, later in a severe world-wide epidemic; in the rapidity of its spread, and in its high case incidence. It has been notably different in a much higher frequency of pneumonia and consequently much higher mortality, especially among young adults.

Such evidence as has been collected confirms the conclusion previously reached that the infection is transmitted directly by "contact" in the broad sense. It appears probable, however, that the infection was already widely disseminated in this country some time before a serious epidemic was recognized.

PROBABILITY OF RECURRENCES IN THE NEAR FUTURE

The question of most practical and immediate interest is the probability of recurrence in the near future. Recurrences are characteristic of influenza epidemics; and the history of the last pandemic and previous ones would seem to point to the conclusion that this one has not yet run its full course. On the other hand, this epidemic has already shown three more or less distinct phases and has been more severe, at least in mortality, than the three-year epidemic of 1889-1892, facts which may justify the hope, though not the conclusion, that it has run its course already.

It seems probable, however, that we may expect at least local recurrences in the near future, with an increase over the normal mortality from pneumonia for perhaps several years; and certainly we should be, as far as possible, prepared to meet them, by previous organization of forces and measures for attempted prevention, treatment and scientific investigation.

FUTURE STUDY AND CONTROL

As regards preventive measures, the efficacy of those carried out in recent months is not proved, and we can only continue to follow the apparently sound principles already applied. It seems hardly logical to expect that any measure short of effective specific immunization will afford lasting protection to the general population; but we may perhaps hope to delay the spread of infection, thus affording better facilities for treatment of the sick, and this is an achievement well worth while.

With reference to scientific investigations, these should not be conditioned on recurrence of the epidemic. Now is the time to inaugurate comprehensive laboratory and field investigations of influenza and pneumonia, to be continued not for a few months, but for a series of years, since a knowledge of influenza during the intervals between epidemics is essential to the understanding of epidemics. In this connection one of the most essential requisites for a better understanding of the disease is better differential diagnosis of endemic influenza, with more careful observation and recording of the relatively mild, indefinitely diagnosed epidemics of supposed influenza which are noted from time to time in the intervals between definite epidemics. Even in the absence of a definite diagnosis of individual cases, much would be added to the history of influenza by describing such outbreaks more fully and making them matters of more general record.

BACTERIOLOGY OF RECENT PANDEMIC OF INFLUENZA AND COMPLICATING INFECTIONS *

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When the recent outbreak of influenza appeared, it was assumed by all that it was probably due to the same cause as that of 1889. Health officials, epidemiologists and bacteriologists, already overwhelmed by the demands of the war, were called on to investigate and combat the infection.

The first appearance of the epidemic was in Europe. Bacteriologists, while keeping an open mind, naturally first sought for the influenza bacillus isolated by Pfeiffer from endemic cases of influenza-like infections some two years after the 1889 epidemic.

He had established a relationship between this bacillus and infections of the respiratory tract and had assumed that it was the primary agent in the great

* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

pandemic. Investigations since then have thrown considerable doubt on this assumption, and many have now come to consider the bacillus as only one of several varieties of bacteria which have a special selective tendency to attack the mucous membranes of the upper respiratory tract.

The reports from different investigations in Europe have been most conflicting. Influenza bacilli were found in some localities to be present in nearly every case, while in others bacteriologists isolated them from only a small minority of the patients.

In their place, pneumococci, streptococci and gram-negative micrococci were found. Frequently, several varieties occurred together. A few observations in France and England indicated that a filtrable virus was present in at least some of the cases. As a filtrable virus had already been demonstrated in outbreaks of common colds, when no epidemic existed, this information, in spite of its great interest, simply added one more line of investigation.

The possibility that more than one epidemic of an influenza-like disease was prevailing in Europe makes it advisable to concentrate our attention on the results of the bacteriologic findings in this country. Here, the unity of the epidemic which swept over the land was unmistakable.

NECESSARY PROOF

To identify a micro-organism as the cause of a widespread epidemic, the germ must be capable of producing the type of disease under investigation; it must be present in the advancing area in all cases at the beginning of the infection, and in any outbreak it must have the same characteristics when freshly isolated from different patients. The repeated transfer of a pathogenic germ from patient to patient allows the most characteristic forms to increase, so that until an epidemic is on the wane we find that isolations from different cases from different localities are practically identical. When the different cultures are grown in artificial mediums, under suitable and similar conditions, the isolations from different sources will continue to hold their characteristics sufficiently to be studied and compared.

Even well trained bacteriologists frequently fail to realize that an epidemic strain is alike everywhere in cases belonging to the epidemic.

Before considering the results so far obtained and drawing our conclusions, let us consider for a moment the special problem before us. Epidemic influenza is a disease primarily attacking the respiratory passages. The symptoms during life and the lesions in the dead, although fairly distinctive in the cases at the height of the epidemic, are by no means so in those occurring after it has passed. Whatever the primary infecting micro-organism may be, there is no doubt that in most cases other pathogenic bacteria are decisively associated. Many of these produce very similar symptoms and lesions. It is perfectly possible that a strain of any one of these bacterial varieties may have increased in virulence to an extent enabling it to initiate an epidemic. The micro-organism responsible for the epidemic may either be a microbe hitherto unknown to us or to a new and more virulent strain of some known form. Even if we assume the latter alternative, we have a difficult problem to obtain the proof, for we must discover how to identify it as a new strain. Supposing that we had found pneumococci in all cases, but that in some we had isolated only Type I and in some only Type II. Instead of this being evidence for a pandemic pneumococcus strain, it would be just the opposite, for two different strains cannot be responsible for one epidemic.

For our purpose, the two types are as distinct as if they were diphtheria and tubercle bacilli; and if either is the pandemic strain, it must occur in all the cases.

Suppose we find in every case a Type II pneumococcus. This is very suggestive, but it is really no proof unless we can show some peculiarity different from that in the cases of respiratory infections before the epidemic. Only then have we probably obtained the culprit. Because of the lack of this evidence, Pfeiffer made his hasty conclusion.

The most delicate test that we have for identity of strains is that animals injected with them produce identical antibodies.

The resemblance between the agglutinins produced is usually selected as the best evidence of identity or dissimilarity. With the filtrable viruses we have to depend on finding some susceptible animal, or revert to human volunteers and if successful in producing infection, test for specific immunity.

RESULT OF RECENT INVESTIGATIONS

The pandemic of 1918 is over. The difficulty of being certain that any suspected cases are due to the pandemic virus is gradually increasing. It is probable that if we have not at the present time gathered sufficiently convincing evidence to convict some germ we shall have to wait for another epidemic to solve the problem. It will be well to summarize very briefly some representative investigations.

Keegan made cultures from a number of cases in the virulent outbreak at the First Naval District at Chelsea, Mass. Cultures from twenty-three cases gave influenza bacilli in nineteen, and in some no other bacteria were found. In four cases he considered a streptococcus of the hemolytic variety the dominant organism and in seven cases the influenza bacillus. The earlier the cultures were taken, the greater was the percentage of influenza bacilli.

Spooner, Scott and Heath found evidence that the cases reacted to the influenza bacillus invasion by the production of antibodies. At the end of the first week agglutinins appeared sufficiently in the blood of some cases to agglutinate influenza bacilli when in a 1 : 50 dilution. In five weeks the serum of some agglutinated when in a dilution of 1 : 800. They found no evidence of strains of influenza bacilli. They did not use the more delicate and accurate absorption methods in their tests. These investigations afforded evidence that in that extensive outbreak the influenza bacilli played an important part either as the primary agent or as a secondary invader. In four cases a hemolytic streptococcus was shown to play an important and even decisive part.

In the Central West, in twenty-three cases of acute influenza in the early stage, Opie, Freeman, Blake, Small and Rivers subjected the patients to examination and obtained influenza bacilli from all. The examination of the sputum from sixty-nine cases of pneumonia revealed influenza bacilli in forty-three.

Pneumococci were found in every case, but were of different types. The men named agree with Keegan as to the etiologic importance of the influenza bacillus in this epidemic. They place the sequence of events as follows: At the time of infection, *B. influenzae* descends into the bronchi; later, pneumococci may

invade the inflamed bronchi, enter the lung and produce either lobar pneumonia or bronchopneumonia. Hemolytic streptococci may at any time descend and infect the pneumonic lung.

Although Keegan, Opie and their associates believe that the influenza bacilli are the causative agent, they present no real evidence. Opie demonstrated in some groups of healthy soldiers, that 50 per cent. could be shown to harbor influenza bacilli. No proof was obtained that these bacilli differed in any way from those isolated from the patients. Their evidence is as strong that the bacilli are secondary invaders as that they were the primary ones.

In 278 cases occurring in New York, Williams found influenza bacilli as shown in Table 1.

TABLE 1.—EXAMINATION FOR INFLUENZA BACILLI

Group	Influenza Bacilli Per Cent. Present
Hospital cases	80
Marines*	100
Home for children	98
Material examined:	
Lungs	80†
Tracheas	96
Heart's blood	10

*The marines came from different vessels.
†Seventeen per cent. in fine cultures.

We found that the best site for the material selected, the use of the best mediums and long training in the study of influenza colonies were important in finding the bacilli.

In 100 cases, among civil and soldier patients in Chicago, Nuzum, Pilot, Stangl and Bones found the results given in Table 2.

TABLE 2.—BACTERIA FROM SPUTUM, NASOPHARYNX AND TONSILS

	Pneu. %	B. Inf. %	St. Hem. %	Mic. Cat. %
Washed bronchial sputum	70	4	20	5
Cultures from nasopharynx	38	0	7	5
Cultures from tonsils	74	0	37	7

Five healthy persons volunteered to be inoculated in the nostrils with the filtrate from infected mucus. A very slight coryza in one and a moderate attack in another resulted. They think the results insufficient to indicate the pandemic to be due to a filtrable virus. They believe that in their cases pneumococci of unusual virulence were the most important early secondary invaders. Influenza bacilli were less important than many other bacteria.

Lamb and Brannin, at Camp Cody, Deming, N. M., found in pneumonia, in sputum specimens, the bacteria as shown in Table 3.

TABLE 3.—BACTERIA PRESENT IN PNEUMONIA*

	Cases	Per Cent.
Pneumococcus (all types, but chiefly Type IV)	310	89.1
Streptococcus (one third hemolytic types)	222	63.3
B. influenzae	89	23
M. catarrhalis	21	6

* Blood agar was used for platings.

A careful survey of all the literature leaves the same impression as that left by the brief summary of the few representative investigations I have just given.

There is no proof that any one germ is present in all cases. The influenza bacillus has the lead among the possibilities, partly because of its historical position and partly because, as it requires much training to isolate it from a mixture of other bacteria, the thought remains in the minds of many that the failure to obtain it in some outbreaks is due, not to its absence, but to lack of training in the bacteriologist seeking it.

If isolations from a number of cases proved to have identical characteristics, the probability that the influenza bacillus was the cause of the epidemic would be great, while if many strains were found it would be slight. Williams and I decided, therefore, to test the immunologic reactions of isolations from more than 100 cases. We also tested great numbers of isolations from a few cases. Miss Valentine and Miss Cooper carried out the tests with the utmost care. They used, for every strain, direct and absorption methods.

DIFFERENT STRAINS

It was found that from the same case either all or the great majority of isolations were identical in their reactions, but that the majority of the isolations from different cases differed from each other either completely or essentially. The results seemed to show that influenza bacilli, like pneumococci, have gradually through the years altered on the mucous membranes of healthy carriers into many strains which, while having many essential characteristics in common, are still different in their susceptibility to specific immune substances and perhaps in other reactions.

In order to test the stability of the strains, we passed several strains through a series of animals, and others were grown for many generations on different mediums, but without causing any appreciable change. An interesting observation was made during this work that when a plate culture is made from material containing several strains, apparently pure colonies will not infrequently yield two different strains. The resultant mixed culture will agglutinate with each of the two serums. Even further plating may fail to separate them. If thoroughly shaken before plating, pure cultures of each strain can usually be isolated from the majority of the colonies.

An important point was whether the infecting strain could be depended on to produce the major part of the organisms in a case. If it did, isolations from the plates made from nasopharyngeal cultures could be considered as belonging to the infecting strain.

Some of our laboratory findings are instructive: One of the workers developed an acute bronchitis. Cultures revealed abundant influenza bacilli. Fifty fishings of colonies from the plates were found on testing to give forty-nine identical organisms and one that belonged to a different strain. Another bacteriologist, by accident, received an infection from a freshly isolated culture. About thirty colonies were fished from the plate cultures, and all proved to have identical characteristics. Other tests gave the same results.

PRIMARY AND SECONDARY INVADERS

It seems right, from the results mentioned above, to assume that the infecting strain is in great excess during an infection and that in nearly every case the colony tested will represent the infecting strain and that the proof that the patients are infected by different strains indicates almost certainly that bacilli were present before and that some other virus created conditions permitting the latent bacilli to attack the tissues.

It is perhaps well to state that not only did Miss Valentine and Miss Cooper subject themselves to the most careful controls, but that they also tested the strains with marks of identification that left them in ignorance of the origin of the cultures.

There was no question in our minds of the essential accuracy of the results.

These results appear to us to throw the influenza bacilli in the cases studied as clearly into the class of secondary invaders.

We believe that the other micro-organisms, such as certain streptococci and pneumococci which are under suspicion in different localities will be found after subjection to similar severe tests not to possess the necessary identity of characteristics to allow them to remain under serious consideration as the primary agent in this epidemic, but rather like the influenza bacillus, to be reckoned among the most important of the secondary invaders.

Our final conclusion is, therefore, that the micro-organism causing this epidemic has not yet been identified.

THE SYMPTOMATOLOGY AND COMPLICATIONS OF INFLUENZA*

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To present a paper on this subject at a time when the periodicals are filled with articles of similar title, and to an audience, almost every member of which has had an all too large personal experience with the subject, requires a word of explanation, if not of apology. To be accurate, the title should read "The Symptomatology and Complications of Influenza as Seen in the Army in This Country." No attempt is made to record the manifestations of this disease as they appear in children, in women, or in persons of advanced years; nor as observed in our own, or in other, armies in Europe. Moreover, the statements to be made relate solely to the great epidemic which swept over the country in the autumn of last year. It is interesting to note, however, that in the late winter and the spring of 1918, epidemics of what was regarded locally as influenza appeared in several of the army camps and posts. The symptoms bore a close resemblance to those of the great epidemic six months later, but these local epidemics were distinguished from the latter by the mildness of the symptoms and the rarity of serious complications.

The data on which this paper is based were furnished by reports to the Surgeon-General from seventy-two base and general hospitals scattered throughout the entire country.

In this large number of reports, two features stand out with great distinctness: first, the singularly uniform and clear-cut clinical picture presented by the cases of uncomplicated influenza in the same camp; and, second, the striking agreement by observers in the various hospitals throughout the country as to the characteristic symptoms of the disease. From these reports there can be no possible doubt that, among the soldiers at least, the disease in its march across the country, from the Atlantic to the Pacific, preserved a remarkable uniformity in its clinical picture.

Of forty-seven reports on this subject, thirty-six gave the period of incubation as three days or less. In half of this number it was given as two days or less. In several reports it was stated as being usually not more than twenty-four hours. On the other hand, in several instances, the interval was placed at from three to seven days and, in one instance, at from seven to ten days. In one camp, in the case of five men with whom the interval between exposure and the onset could be accurately determined, the period in each instance was forty-eight hours. It seems safe to conclude, therefore, that the incubation period is, in general, very short and that the most frequent interval is about forty-eight hours.

In what follows it should be clearly understood that, for the moment, only the symptoms observed in simple, or uncomplicated, influenza are being considered.

ONSET

There is practical unanimity in the assertion that the onset is abrupt in the great majority of cases. Most reports give the percentage of abrupt onsets to the whole number as from 80 to 90. The initial symptoms were surprisingly constant and uniform, being chilliness, prostration, fever, headache, backache, and pains in the limbs. Somewhat less frequent initial symptoms were an irritating, dry cough and sore throat. To these symptoms must be added a characteristic mental state and a peculiar facies which will be described later.

SYMPTOMS

Prostration.—This was one of the earliest, as well as one of the most constant, symptoms. Frequently extreme, it varied much in its severity and in its duration; but it was characteristic of many cases that the muscular weakness persisted long after the temperature had become normal and all the other symptoms had disappeared.

Respiratory Symptoms.—There is general agreement that cough was present at some time in almost all cases, even in most of those classed as uncomplicated. During the early part of the illness it was usually of a hard, dry, racking character, with little or no expectoration, and was commonly associated with a feeling of retrosternal soreness or pain. During the later days of the attack it usually became looser and was accompanied by sputum and by the physical signs of tracheitis or bronchitis. The sputum varied much in character and in quantity. At first scanty, tenacious and mucous, it later became more profuse and mucopurulent. Occasionally, even in uncomplicated cases, it showed streaks of blood and, rarely, blood in considerable quantities.

The frequency of hoarseness as a symptom seemed to vary much. Often the husky voice appeared to depend on the dry, congested state of the pharynx, and on the great prostration, rather than on an actual laryngitis.

Coryza was, in most reports, classed as a frequent manifestation. It was by no means constant, however, and, in some hospitals, seems to have been of infrequent occurrence.

Epistaxis was a striking symptom in many patients. It was present in approximately one fourth of the cases, and sometimes was so severe and persistent as to cause very serious concern. Some observers noted that it seemed to be more frequent in those patients who, later, showed evidences of pneumonia, than in those who did not.

The respiratory rate in simple influenza showed very little disturbance. In relation to the height of the temperature it was notably low. A steady rise in the breathing rate was one of the most trustworthy indications of the existence of a complicating pneumonia. The physical signs of the chest were usually quite normal during the first day or two of the illness, and, indeed, not infrequently throughout the attack. Often,

* Read before the joint meeting of the Section on Pharmacology and Therapeutics, the Section on Pathology and Physiology and the Section on Preventive Medicine and Public Health at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

however, sibilant and sonorous sounds, with, or without, scattered, coarse râles, were audible in the latter part of the illness.

Circulatory Symptoms.—There is abundant testimony to the effect that one of the characteristic and striking features of influenza is a slow pulse. Even with a high temperature the rate was usually only 80 or 90 per minute. Rarely was it more than 100, and not infrequently it was as low as 70. A tendency to dicrotism was common. With the fall of temperature at the beginning of convalescence, the pulse sometimes dropped to 50 per minute. Disturbances of rhythm were rare. Changes in the heart's size, or evidences of serious disturbance of the cardiac function were almost unknown. In a certain proportion of the convalescents, however, persistent tachycardia occurred.

The arterial blood pressure seemed to show no characteristic or significant change. A tendency toward unusually low diastolic pressure is noted in one or two reports.

The blood showed a striking and constant feature in the small number of the white blood cells. The count rarely exceeded 10,000 per cubic millimeter, and was usually less than 6,000. A leukopenia of from 2,000 to 3,000 was by no means uncommon. Even in the presence of a complicating pneumonia, the leukopenia tended to persist. The reduction was mainly at the expense of the polymorphonuclear cells.

Symptoms Referable to the Nervous Symptoms.—Of these, pain was much the most conspicuous. Headache, usually frontal, constituted one of the earliest and most constant of symptoms, and was generally associated with severe backache and aching pain in the extremities. As has been said, dull, retrosternal pain was frequently complained of. Abdominal pain was of rare occurrence. Occasionally, but rarely, there was marked general hyperesthesia of the skin and underlying tissues.

Great apathy, mental dulness and somnolence marked the early stage of the attack in most cases, and with these symptoms there were usually also great depression of spirits and loss of "nerve." In a few of the reports, insomnia is described as of frequent occurrence.

In uncomplicated influenza, delirium was rarely seen. The syndrome of meningismus also was very rare. One point in which this epidemic seemed to differ from that of 1889-1890 was in the absence of severe neuralgic pain, either as a symptom or as a sequel.

Gastro-Intestinal Symptoms.—In general, gastro-intestinal symptoms played a very inconspicuous rôle in the clinical picture. In only one out of seventy-two reports were cases with predominant gastro-intestinal symptoms classed as frequent. In almost all the others such cases were described as rare. Nausea was not uncommon, and vomiting occurred occasionally, but was rarely severe or persistent. Troublesome diarrhea was conspicuously infrequent. Abdominal tenderness was sometimes encountered, but seemed usually to be either a part of a general hyperesthesia or related to inflammation in the chest which involved the diaphragmatic pleura. Very rarely it was caused by a complicating local or general peritonitis. A recognizable swelling of the liver or spleen seemed to be no part of the usual clinical picture.

Sore throat was frequently complained of, and was due to congestion and inflammation of the pharynx and soft palate rather than to tonsillitis. The uvula commonly was swollen, red and edematous at its tip.

Cutaneous Manifestations.—Perhaps no group of symptoms was more varied and interesting than that referable to the skin. One of the characteristic and striking initial symptoms was the hot, turgid, flushed appearance of the face which, with the swollen and injected conjunctivae, suggested to many observers the facies of measles without the characteristic eruption. The flushing often extended beyond the face and neck to the chest and trunk generally. Sometimes it assumed the character of a distinct, erythematous rash, which occasionally was so punctate as to bear a close resemblance to that of scarlet fever. This resemblance was sometimes accentuated by the character of the desquamation which followed.

Occasionally, the eruption, instead of being erythematous, was composed of discrete macules scattered over the face and the upper part of the trunk, and showing, at times, a tendency to appear in successive crops.

Herpes of the face and lips was seen in perhaps 10 per cent. of the cases. In spite of the frequency of epistaxis and the occasional tendency to free bleeding from the bronchi, hemorrhagic skin eruptions, either as petechiae or as ecchymotic spots, were extremely rare. Sweating was very common, even in cases in which it could not be ascribed to the use of diaphoretic drugs. Itching of the skin was not a symptom. Jaundice in simple influenza was very rare.

The Organs of Special Sense.—Injection of the conjunctivae was one of the most constant of the early symptoms, and, with the flushed face, the crimson or sligtly cyanotic lips, and the dull, apathetic expression, made up a facies which, by general agreement, is characteristic of and peculiar to influenza.

Another common symptom was pain and stiffness on movement of the eyeballs. Photophobia, while occasionally very marked, was a much less frequent symptom. Loss of power of accommodation was noted in a few cases.

Earache is classed, in most reports, as an infrequent or rare symptom in the uncomplicated cases. Disturbances of hearing were extremely rare, as were also disturbances of the sense of taste and of smell.

Urinary Symptoms.—Among the outstanding clinical features of influenza must, I think, be included the surprising immunity of the kidneys and, indeed, of the whole urinary tract, from damage by the virus of that disease. The testimony is universal that serious injury to the kidneys was almost unknown.

While traces of albumin were not infrequently found in the urine during the febrile period, considerable amounts of albumin were extremely rare, as were also casts in significant number, hematuria and evidences of disturbed renal function.

Inflammation of the pelvis, of the kidneys and of the bladder also were rarely seen.

CONVALESCENCE

The rapidity with which, in cases of uncomplicated influenza, complete recovery was established, varied greatly. In a considerable proportion of cases a very few days were all that were required. In a majority of the cases, however, complete recovery was more gradual, and, in not a few cases, convalescence occupied a period of several, or even of many, weeks. In these cases the chief symptoms during this time were

muscular weakness and lassitude, mental depression and persistently rapid heart action.

COMPLICATIONS

In considering the complications of influenza, it must be admitted that it is sometimes difficult to draw a sharp line between conditions which should be regarded as a part of uncomplicated influenza and such as should properly be looked on as definite complications. The distinction must necessarily be a somewhat arbitrary one. This is not the place for a discussion as to the propriety of regarding pneumonia as an intrinsic part of influenza. In spite of the fact that in certain cases the pulmonary inflammation seems to be present from the very onset of the illness, there are, it is believed, sound theoretical and practical reasons for following the usual custom of placing pneumonia in the category of complications.

Pneumonia.—In the Army reports, the incidence of pneumonia among cases of influenza varies from 8 to 23 per cent. These variations are to be explained in part, but only in part, by the difficulties in many instances attending the diagnosis of pneumonia, and by the fact that in different hospitals widely different criteria have been used as the basis for the diagnosis.

In most hospitals the percentage of cases of influenza complicated by pneumonia has been between 10 and 15.

From the extraordinary variety of the pulmonary lesions found in patients dying of influenzal pneumonia, as well as from the multiplicity of types of the infecting micro-organisms, it is not surprising that the clinical picture should be exceedingly varied and complex. To cover in detail all of these clinical variations is far beyond the scope of this review. Only the more important and salient features can be touched on. It is necessary, however, to emphasize the close relation which exists between the purely clinical aspects of the disease and the nature of the dominating organism in the lung. This relation seems to be especially important in the case of *Streptococcus hemolyticus* and of *Staphylococcus aureus.*

Onset: With respect to its mode of onset, influenzal pneumonia may be divided into three groups of cases: first, those in which the symptoms and signs of pneumonia develop almost imperceptibly in the course of the active, febrile stage of the influenza, the patient gradually becoming sicker at a time when convalescence might naturally be expected; second, those in which the pneumonia supervenes after the patient has definitely entered the stage of convalescence, and usually after the temperature has been normal for several days; third, those cases which, from the very beginning of the illness, bear the aspects of a pneumonia. In such cases the onset of the attack is apt to be marked by a distinct rigor. Except in this last class of cases a chill is infrequent as one of the initial symptoms of pneumonia. Usually the onset is marked by a more or less gradual rise in temperature and by an increase in all of the respiratory symptoms.

Outstanding Clinical Features: The following may be classed as the outstanding clinical features of influenzal pneumonia as seen in the Army as compared with primary pneumonia of the familiar type:

The temperature usually showed a less abrupt rise, a somewhat lower range of level, a greater tendency to the remittent type, and, in cases in which the patients recovered, a less critical fall to normal. The pulse rate tended to maintain a somewhat lower level than is customary in pneumonia, and in certain cases was conspicuously slow. In unfavorable cases, however, the rate often became very high.

Much the same may be said of the respiratory rate. In many cases, during the early days of the pneumonia, the breathing rate was hardly greater than normal and, even in the presence of deep cyanosis, the breathing was sometimes surprisingly slow and quiet. This, of course, does not apply to all cases. In some, especially in the fulminant cases with early pulmonary edema, the respiratory distress was a marked feature, and the breathing was often very rapid as well as labored.

The importance of cough as a symptom varied greatly. In many cases it was distressing enough, but in general it may be said that a much larger proportion of influenzal pneumonias is characterized by almost complete absence of cough than is the case with primary pneumonia. The pneumonia wards in the great Army hospitals during the epidemic were often strangely quiet.

The sputum showed extraordinary variations, both in character and in quantity. Usually it was much more profuse and less viscid than in primary pneumonia, and of mucopurulent or of frankly purulent character. Blood was usually present at some time, but less often had the characteristic rusty or brick dust appearance than that of unchanged blood. In many cases, considerable amounts of blood were raised. In the fulminant cases, with early and intense edema, great quantities of pinkish, frothy, watery fluid were poured from the bronchi. In not a few cases there was complete absence of sputum.

The characteristic sharp, stabbing pain of pneumonia was conspicuous by its rarity. A majority of the patients had little or no pain of any sort. Often the pain was referred to the sternum and had a "gnawing" or "burning" character.

The physical signs of the chest were distinguished by their late appearance, their indistinctness, their wide distribution, their slow disappearance and the infrequency of the signs of frank consolidation. The signs were almost always bilateral. They usually appeared first over the lower lobes posteriorly in the form of small areas of fine, crackling râles, impaired resonance, and great diminution or suppression of the vesicular murmur.

Cyanosis.—One of the distinctive features of the pneumonia complicating influenza was the prevalence of cyanosis of a degree which is quite exceptional in the familiar primary type of the disease. When associated, as it often was, with marked pallor, it gave a peculiar dark gray tone to the skin which early came to be recognized as of sinister import.

Chickering[1] associates a special type of cyanosis of "cherry-red indigo-blue color" with those cases in which *Staphylococcus aureus* is the dominant organism in the lungs.

A characteristic feature of the cyanosis, in many cases, was the entire absence of subjective distress and air hunger. Stupor and delirium were common symptoms in severe cases. The delirium was of two types: the active, violent form which required unceasing watchfulness, and the quiet, muttering type which was accompanied by the other usual signs of the "typhoid" state.

1. Chickering, H. T., and Park, J. H.: Staphylococcus Aureus Pneumonia, J. A. M. A. **72**: 617 (March 1) 1919.

While leukopenia was not quite so universal as in simple influenza, it nevertheless was present throughout the pneumonia in the majority of cases, and often was very pronounced. Counts of 3,000 or less were not so very infrequent.

Duration: The average length of life in fatal cases, from the time of recognition of the pneumonia, may be stated as between four and five days, and from the onset of the influenza, as from seven to ten days. Among the patients who recover, the average length of the febrile period is somewhat longer.

Fulminant cases: Special reference should be made to a remarkable clinical type which, in a few camps, notably at Camp Sherman, was sufficiently common to form an outstanding feature of the epidemic. The patients, even on admission to the hospital, showed extreme cyanosis, high fever and intense air hunger, and died in from twenty-four to forty-eight hours. The chest was filled with coarse, bubbling râles, and pinkish, frothy serous fluid often poured from the mouth and nostrils. The postmortem findings in the lungs were those of intense congestion and edema, without actual pneumonia. Friedlander[2] compares the clinical picture to that seen after severe exposure to chlorin gas.

Other Respiratory Complications.—Severe acute laryngitis, sometimes with ulceration, was a not uncommon complication in the pneumonia cases.

A certain proportion of influenza patients, instead of having only a mild bronchitis, develop a severe, purulent form which may last for weeks or months and may be associated with multiple, small bronchiectases.

Pulmonary Abscess.—The suppurative processes which frequently complicate the pneumonia of influenza seem to result chiefly, if not entirely, from the action of *Streptococcus hemolyticus* and *Staphylococcus aureus*. Such abscesses are usually small and multiple and are much more frequently found at necropsy than recognized during life. Solitary, large abscesses are rare.

Pleurisy and Empyema.—In general, in influenzal pneumonia, all forms of pleurisy were noticeably rare in cases of pneumococcal origin; and, except in hospitals in which streptococcus cases were numerous, pleural complications were much less frequent than we are wont to expect in primary pneumonia.

In the streptococcus cases, however, the pleura is extremely prone to infection, and empyema, either free or sacculated, was common. An important type clinically was the small, interlobar empyema, so difficult often to recognize, and so frequently mistaken for unresolved pneumonia. The incidence of empyema among the pneumonia cases probably did not average more than 5 per cent.

Subcutaneous Emphysema.—A remarkable but rare complication, a few examples of which were encountered at almost every camp, was extensive, subcutaneous emphysema. It was usually seen in cases of severe pneumonia, and appeared first either in the episternal notch or above the clavicles, extending thence rapidly to the neck, face, scalp, chest, arms and trunk and, sometimes, to the scrotum. The prognosis in such cases seemed to depend rather on the severity of the pneumonia than on the existence of the emphysema. Such emphysema has been proved not to be due to gas bacillus infection. The mechanism of its production is discussed by Berkley and Coffen.[3] In most cases, certainly, the air finds its way to the subcutaneous tissue by the rupture of air vesicles and by passing thence along the vessel sheaths to the hilum of the lung and to the superior mediastinum. In both of two cases with this complication coming to necropsy at the base hospital at Camp Jackson, the lungs showed *Staphylococcus aureus* infection, with multiple miliary abscesses, most numerous just beneath the pleura.

In a few instances the emphysema has been associated with a pneumothorax.

Serious heart complications were conspicuously rare, even in the pneumonia cases. The severer forms of arrhythmia, such as auricular fibrillation and heart block, were occasionally observed, and rarely a pericarditis was found, sometimes during life but usually only at the necropsy table.

The persistent tachycardia, so frequently seen during convalescence from influenza, seems to be a purely functional disorder, belonging to the category of the so-called irritable heart of soldiers, and related to the general asthenic state rather than to any actual heart damage. There is no reason whatever to believe that it indicates a myocarditis or myocardial degeneration. Its tendency is wholly in the direction of complete, if gradual, recovery. This tendency may be largely nullified, however, by the unwise policy, on the part of the physician, of permitting the patient to believe he has some serious heart disorder which demands the strict avoidance of exercise and exertion.

Thrombophlebitis.—This was an infrequent, but important, complication. It usually involved the leg veins and was associated, in an unusually large proportion of the cases, with fatal pulmonary embolism.

A very few instances of thrombosis of the arteries of the leg, with gangrene, are recorded.

Complications Referable to the Nervous System.—Of these, the most important, meningitis, seems to have occurred only in the cases complicated by pneumonia, and even in these cases was comparatively rare, although a considerable number of instances have been recorded. At Camp Jackson, among eighteen cases of meningitis complicating influenza, thirteen were caused by the meningococcus, four by the pneumococcus and one by the staphylococcus.

The types of delirium seen among the pneumonia cases have been referred to. Mental depression, in the frequent cases of slow and tedious convalescence, was often pronounced, and sometimes amounted to a true psychosis with suicidal tendencies. In general, however, the psychoses belong rather to the sequelae than to the complications of influenza and, as such, are beyond the scope of this paper. The relation to influenza of such organic nervous diseases as lethargic encephalitis and epidemic polyneuritis is still obscure and uncertain.

Complications referable to the gastro-intestinal tract are few and infrequent. Inflammation of the parotid gland was occasionally seen among the severe pneumonias. Jaundice, even in the pneumonia cases, was very infrequent. Marked tympanites was a frequent and dreaded symptom among the severe pneumonias.

A few instances of peritonitis, generally of pneumococcal origin, have been reported. Most of these were localized in the diaphragmatic region or the upper

2. Friedlander, Alfred; McCord, C. P.; Sladen, F. J., and Wheeler, G. W.: The Epidemic of Influenza at Camp Sherman, Ohio, J. A. M. A. **71**: 1652 (Nov. 16) 1918.

3. Berkley, H. K., and Coffen, T. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax, J. A. M. A. **72**: 535 (Feb. 22) 1919.

abdomen. In a very few instances the peritonitis was general.

Arthritis.—As a complication, arthritis was rare. Occasionally a pneumococcal arthritis was seen in cases complicated by pneumonia.

Disturbances of the kidneys, as has been said, formed no part of the clinical picture of simple influenza. In a few of the cases complicated by pneumonia, evidences of nephritis appeared; but such cases were rare and the nephritis usually mild in type.

Inflammation of the Middle Ear.—This is classed, in most reports, as an infrequent complication. Figures are available from one base hospital (Camp Hancock) in which systematic and regular examinations of the ears of all influenza patients were carried out. Among 7,800 cases of influenza, an otitis media sufficiently pronounced to call for incision of the drum was found 300 times, or in about 4 per cent. of the cases. Among these 300 cases of otitis, a mastoiditis of sufficient severity to demand operation occurred only four times. There is much testimony to the effect that, in most camps, mastoiditis was a rare complication of influenza.

Inflammation of the Accessory Sinuses.—This was, clinically speaking, a very infrequent occurrence. Only rarely were frank examples of frontal or maxillary sinusitis encountered; but the postmortem findings in patients dying of pneumonia told a very different story. In these fatal cases, purulent inflammation of the sinuses was very commonly found. Among fifty-five necropsies at the base hospital at Fort Riley,[4] the sphenoidal sinus was shown to be involved in 68 per cent., the ethmoidal sinus in 31, and the mastoid cells in 41. The frontal sinus was affected in only two cases.

COMPARISON OF RECENT EPIDEMIC WITH THAT OF 1889-1890

For one who, as a hospital intern, had a personal experience with the influenza epidemic of 1889-1890, it is interesting to review the clinical features of that epidemic and to compare them, one by one, with those of the recent pestilence. After such a review no one can, I think, have the least doubt as to the identity of the two epidemics. Not only is there a striking similarity in the modes of onset and in the symptoms of the disease proper, but, in the tendency to special complications, and in particular to pneumonia of an unusual type, the resemblance is extremely close. All the well known diagnostic features of the present epidemic find their counterparts among those of the earlier one; the abrupt onset, the prostration, the pains, the injected conjunctivae and painful eyes, the characteristic skin rashes, the prevalence of respiratory symptoms—all these are features common to both epidemics.

Certain differences, chiefly of degree, can be noticed, however. The virulence of the recent epidemic was unquestionably greater. A larger proportion of the population seems to have been attacked; the incidence of pneumonia has been greater, and its mortality has also been somewhat greater, apparently.

Examples of the so-called cerebral and gastro-intestinal types of influenza, concerning which much was said and written in the earlier epidemic, have been so rare in the present one as to raise a question as to the propriety of such a classification. In the present epidemic there has been, for all practical purposes, only a single type—the respiratory.

11 East Forty-Eighth Street.

4. Stone, W. J., and Swift, G. W.: Influenza and Influenzal Pneumonia at Fort Riley, Kansas, J. A. M. A. **72**: 487 (Feb. 15) 1919.

THE MAXILLOFACIAL SERVICE OF THE AMERICAN ARMY IN THE WAR*

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ST. LOUIS

Among the many special problems listed on the preparation program of the Surgeon-General of the Army was the care of injuries of the face and jaws. These had been a particularly trying problem in the Allied armies in the earlier part of the war. In July, 1917, a section of the Division of Surgery of the Head was organized to take over this duty. The motif of preparation was the conviction that the earlier proper treatment could be instituted and continuously carried out, to a proportionate extent would conservation displace reconstruction. To make this practicable would require: first, a sufficiently large personnel to be available at every advanced and at all intermediate and base hospitals; second, a definite general plan of treatment which, instituted in the advanced hospitals, would be carried out without radical change in each of the hospitals to which the wounded would be subsequently evacuated, and thirdly, and not unimportant, suitable equipment.

The proper treatment of maxillofacial injuries rests on the same surgical principles as that of wounds in any other part of the body; but because the proper splinting of a fractured jaw requires dental splints, or splints with dental attachment, and because few surgeons have familiarized themselves with the physiology and the special pathology of the oral structures, to do the work efficiently requires, as a rule, the cooperation of a surgeon with a dental surgeon who has made a special study of the subject.

We had available in this country a large number of dental surgeons who had made this special study, and of surgeons fitted for this cooperation.

EARLY PREPARATION

The Surgeon-General, with the generous and wholehearted cooperation of both the medical and dental professions, and especially of the institutions to be named, established special short courses in the Northwestern University Dental School; in the Evans Dental Institute, University of Pennsylvania, and in Washington University; but the selection of teachers was not confined to the faculties of these particular schools. A large number of surgeons and dentists were sent to take the courses, not with the idea that they could be created into specialists, but that the dentists and surgeons could be shown the plan of cooperation, while splint making, the more likely problems, and the anatomy of the parts were being reviewed. Not the least important of the things accomplished by these schools was the data obtained as to the qualifications of officers for the work, which requires also the cooperation of the ophthalmologist and otorhinologist; and the close association of the latter sections with the maxillofacial in the Division of Surgery of the Head simplified the arrangement for this cooperation, which has been harmoniously carried out ever since.

* Read before the Section on Surgery, General and Abdominal, at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

In the matter of equipment, everything asked for was allowed by the Surgeon-General and assembled into sets adapted to advanced and base hospitals.

FRENCH AND BRITISH COOPERATION

In April, 1918, the preliminary work in this country having been carried as far as practicable, the Surgeon-General sent a unit of about twenty surgeons and twenty dental surgeons to the chief surgeon of the American Expeditionary Forces with the request that they be given the opportunity to observe the method in practice for caring for face and jaw injuries in the hospitals of our allies, and through the courtesy of the authorities they were distributed among several British and French hospitals especially devoted to this work, namely, the various Paris hospitals, Queen's Hospital at Sidcup, King George Hospital, England, and British General Hospital No. 20 at Boulogne. Later, as their services were required in our own hospitals, they were gradually withdrawn from these stations. It would be very ungracious if I did not pause in this hurried review to acknowledge the debt we owe to the British and French authorities for the help they gave us in this manner, and I mention, among others, especially Collyer, Gilles, Cole and their staffs; Lemaitre, Pont, the late Moristan, Villain and Kazanjian, who did everything they could to make their experiences available to us.

ORGANIZATION OF OPERATIONS IN FRANCE

Shortly after we arrived in France, a senior consultant for maxillofacial surgery for the American Expeditionary Forces was appointed, and a policy for the care of these cases was outlined, which differed a little from the plan contemplated by the Surgeon-General. Information as to the general plan for evacuation and treatment of these patients was sent out. France was divided into seven areas, to each of which a local or area consultant for maxillofacial surgery was appointed. In each American hospital center the cases were concentrated as far as practicable in one hospital, where they were attended by a local consultant for the center, in cooperation with specially selected dental surgeons. In each area, comprising several hospital centers, the area consultant, while he was free to travel throughout his area, was attached to a certain hospital to which he could request to have evacuated any patient who could best be treated at his own hospital, or to Hospital No. 115 at Vichy. The latter had been especially designated and equipped to care for face and head injuries.

LACK OF SURGEONS AND EQUIPMENT

The atmosphere of war, in spite of intense concentration, is one of distraction. All plans of specialization are more or less ideal, and it takes time to put any subordinate plan into operation, especially if it is far-reaching in its application. Each hospital organized in the Surgeon-General's Office had attached to it a surgeon and a dental surgeon designated for this work; but in the earlier part of the severe fighting, all specialization was overshadowed by more vital problems. It is no secret that, owing to the lack of transportation, we were short of surgeons and dental surgeons in the American Expeditionary Forces, and that at Chateau Thierry most of the surgical consultants were ordered to form general operating teams, and they stood twelve hour shifts at the table at any hospital where they could find space; while the dental surgeons were often giving anesthetics, carrying the stretchers or giving first aid treatment. I have seen a hospital with an operating room capacity of 360 cases per twenty-four hours, at 2 o'clock in the afternoon, in all the confusion of raising the tents, and which, before seven the next morning had received 750 severely wounded—with the stream unabated; and I know of instances of even greater congestion. At one rail head, two consultants formed a team and carried stretchers for nearly a day.

The foregoing instances are mentioned to illustrate just one of the reasons why it took time to establish these special services.

I believe our service abroad had some success in its work. In my own mind I am very enthusiastic about its accomplishments. When all of the special records of these cases are received from abroad, we shall have definite figures to judge from. Until then, its accomplishments can be measured only by inference. After August 20, there was a breathing spell, during which this service really got on its feet; and from the Battle of the Argonne, September 25, it was on the job and delivering the goods at all stations, if I may be allowed to use this expression. It was a bit of a handicap that little of our special equipment ever became available; but shells and food take precedence over other things. This worried the dental surgeons, who were not backward in worrying the consultant, and the consultant worried every one.

During the St. Mihiel drive, a dental surgeon of a mobile hospital telephoned the local consultant of the advanced area, asking what he could use to take care of the jaw injuries that were accumulating. The consultant replied, "Use your wits," and slammed down the telephone. He had been asked this question once too often. To the credit of our dental surgeons, they used their wits, and by piecing out our own supplies with what the chief dental surgeon could obtain from the French; by beating two franc pieces into splints; by robbing the shell-cut telephone wires, and by cutting meat tins into splints, from the beginning of the Argonne there were few patients who reached the base hospitals unsplinted.

NUMBER AND RECORDS OF CASES

We have at present no definite figures as to the total number of these cases. Taking the statistics for the Union forces in the Civil War, the Prussian forces for the War of 1870-1871, and the British forces for the present war up to Christmas, 1917, as a basis for calculation, they should average at least 1 per cent. of all wounds, which, according to the last report of wounded May 31, 1919, would give a total of more than 2,371 cases.

There have been evacuated to this country to date about 600 patients, and practically no more remain abroad. Of these 600, 260 have been discharged, and eighty-five are ready to be discharged. For the 339 patients now in hospitals, making liberal estimates of the time necessary for total recovery, there are ninety-two who will require two months; eighty-two, four months; fifty, six months; eleven, eight months; seven, twelve months, and one, eighteen months before they can be discharged as well; but it is estimated that the time that will necessarily be spent in the hospital will average from two weeks to ninety days for the foregoing cases. In my recent inspection of four centers I did not see one case in which there was a free discharge of pus; in fact, any pus at all in these cases is very rare.

In this country, these cases have been concentrated in four hospitals, and an arrangement with the Public Health Service is under way which will assure the continuance of their treatment nearer their homes of men who wish their discharge.

In the general planning, the matter of records was included. Abroad, every maxillofacial case was recorded in some detail on a special form designed for that purpose, and these are to be returned to this country, to be correlated with the records here. At certain centers abroad, photographs, casts and wax models were made of the earlier conditions, and tracings of the roentgenograms. At each of the four centers in this country there is attached to this service an artist, a sculptor, a photographer and a stenographer, and an officer is assigned to supervise and assemble the records. The Surgeon-General has sent out instructions as to the general plan of these records, and has ordered that on completion of the work all should be sent to Washington to be assembled with the records from abroad, for a permanent exhibit in the Army Medical School Museum. Part of this record is on exhibit in the Exhibition Hall here.

MASKS

The matter of making masks to camouflage these face injuries was investigated extensively by the Surgeon-General, and a personnel trained for the work. A few were made for our soldiers by the Red Cross in Paris, and several here, by our own staff; but the men will not wear them, preferring plastic reconstruction. There is not, to my knowledge at present, a single mask in use by our soldiers, and Major Gilles of the British service tells me that the soldiers have the same preference. We do, however, use prosthetic reconstructions within the mouth.

IMPORTANCE OF EARLY TREATMENT

In this review of the work it is impossible even to mention technic, but there is one thing that observation has strongly emphasized, and that is that delayed recovery and restoration are on the whole much more dependent on delayed treatment and infection than on primary loss of tissue, and that early treatment will prevent or control infection. It was brought out more strongly than ever before that infection is the chief factor in delayed union or reformation of the jaw bones, not necessarily accompanied by free flowing pus or extensive induration, but a quiet process, often difficult to detect, usually kept up by want of proper drainage and the presence of a foreign body, most likely an exposed tooth root or a piece of denuded bone. No matter how often the observation is repeated, it is interesting to note with what rapidity bony consolidation frequently follows the removal of a tooth or bone spicula from or near a fracture line that was apparently perfectly clean, but in which union had hung fire for months.

The great majority of cases requiring bone grafting do so not from the primary loss of all bone-forming tissue, but because of one or several of the following reasons: The bone-forming structures are destroyed by infection, which causes scar tissue to replace bone reproduction; or there has been a want of proper early splinting, which in itself predisposes to infection. It is usually a combination of both these factors that is responsible for a total loss of a segment, which is more apt to occur if, at the time of the injury, bone fragments are removed. Instances in which all of the bone-forming tissues are destroyed by the original injury are the exception. Altogether, about seventy-five cases will require grafting, or have been grafted, for bone loss in the lower jaw. Most of these will be pedicle grafts, which require less time for union and are more certain in result than the free bone graft. It has been the policy throughout to restore the normal occlusions rather than to bridge defects by shortening the body of the jaw.

The last jaw case in which I saw an operation performed in the American Expeditionary Forces was a fair illustration of the working of our plan for conservation. Going into the operating tent of a mobile hospital, I watched a young surgeon whom I did not know and one of our dental surgeons assemble, splint and repair a mandible that was shattered from angle to angle, with the lip, chin and floor of the mouth torn open to the hyoid. When they completed their work, the bony fragments were in their proper position, and the soft parts repaired, all with proper drainage. There was left only a slight defect in the lower lip. Had this treatment been delayed thirty-six hours, the patient would have represented one of those horrible cases of total loss of the chin and body of the mandible which have been so frequently depicted. I never saw the patient again, that is, to recognize him, but with the subsequent treatment we were prepared to give it is probable that the soft tissues healed primarily with bony consolidation within three to six months.

NECESSITY OF DENTAL SURGERY

There are two other cases coming to my earliest observation, between which I have frequently made mental comparison. Before cooperation had been made practicable, April 25, 1918, one of the best operators in the American Expeditionary Forces had treated a case with bad laceration and comminution by ordinary surgical methods, with wiring of the fragments. The patient was evacuated and subsequently treated as though his were a general surgical case. Within a short period there entered the service of the same surgeon a rather similar case, which was treated by him and the dental surgeon jointly. I reencountered the second patient a month later at a base hospital. The soft tissues had healed with linear scars, the jaw fragments were firmly splinted and in good position, and there was no pus. Six months later I again found the first patient; he was profoundly septic, with fragments of dead bone protruding from the cheek wounds, and there was great deformity. He still will require a bone graft on each side of the body of the lower jaw, and has no lower teeth by which to fix the fragments. "One swallow does not make the summer," but one case will illustrate the surgical principle.

ABSTRACT OF DISCUSSION

DR. ROBERT H. IVY, Milwaukee: I had the privilege of being associated with Colonel Blair practically from the beginning in the organization of the plastic and oral surgery section in the Surgeon-General's Office, and was later at a center in France where a large number of maxillofacial injuries were treated. Our work consisted largely in getting the wounds out of the infected stage so that they would be in proper condition for bone and plastic operations later. A certain percentage of cases of gunshot fracture of the mandible with loss of substance resulted in nonunion in spite of the best of treatment in the way of fixation and removal of sources of infection. At the Walter Reed General Hospital we are employing two methods of grafting: (1) Taking the

pedicled bone graft from the mandible itself, as described by Cole. The graft consists of a piece of the lower border removed from the anterior fragment, with a pedicle of muscle and fascia attached to it below for nourishment. This method is suitable for cases of fracture of the body of the mandible, where the angle is not involved, and where the loss of bone does not exceed 4 cm. We have employed it in two cases, obtaining primary union of the operative wound, and firm bony union in one case. In the other case, bony union is apparently taking place two and a half months after the operation. (2) Where the angle and ascending ramus of the mandible are involved or where there is great loss of substance, we are employing the osteoperiosteal method of Delagenière. This method, on account of its simplicity and the good results obtained by French surgeons, deserves to be better known in this country than is the case. The fragments having been previously splinted in their proper relations, the ends are exposed by careful dissection and removal of scar tissue. Especial care must be taken not to open into the mouth. If this happens, the operation should be discontinued immediately. A bed is prepared for the grafts by the creation of pockets between the bony ends and the surrounding soft tissues. The material for the grafts is taken from the tibia, and consists of a thin shaving of the outer layers of the bone with the overlying periosteum attached. The osteoperiosteal method has been used by us in eight cases with losses of substance ranging from 2.5 to 10 cm. Primary operative union followed in all cases except one, in which a hematoma occurred, followed by some suppuration and extrusion of small shreds of bone from the graft. Even in this case, encouraged by the experience of Delagenière, we have good reason to believe that union is taking place. It is too early yet to report as to the final outcome in these cases. The splints will not be removed for at least three months.

Dr. George M. Dorrance, Philadelphia: I do not agree fully with Colonel Blair in regard to suturing these wounds at the front. They should be drained unless one can control the cases and do not have to transport them to the rear. If you are going to transport the men 300 or 400 miles, the wound should be drained. In cases where I sutured the wound and retained the patient, he did well; when I sent the patient back, he did not do as well. Later, when I was in the rear, I saw many cases which had been sutured and the wound later broke down, necessitating operating over again. My feeling is just to suture the wound sufficiently to give adequate drainage. The important thing is to understand skin grafting of the mouth. At Queen's Hospital, Sidcup, they developed free skin graft in the mouth with practically no failures. We have not had a single failure at the Cape May hospital. The operation consists of incising through the mucous membrane or scar and producing a cavity one third larger than is required, thus allowing for subsequent contracture. A model of the cavity is made with modeling compound and later attached firmly in position to the teeth, after a thin Thiersch skin graft is placed over it. If the graft rides beyond this area, it does not make any difference. It is held in there by pressure for a varying length of time, on an average of three to five weeks. We have failed with skin grafts on the outside of the body in a certain percentage of cases. In the reconstruction of noses, we have gone back to the Indian method. We have learned to use the new method adding inverted skin to make the lining of the nose; if this cannot be done, use the inside flap turned down by the Indian method. Every flap for the mouth or for the nose must be lined. In performing these plastic operations, do not plan them so that the patient looks beautiful when he comes off the table, because there is always considerable shrinkage. It is better to turn the skin edges out so that they look like protuberances.

Dr. John B. Roberts, Philadelphia: Those practicing general surgery found that they could not treat infected fractures of the jaw well, especially when there was loss of bone from injury or from secondary infection. Now there are all over this country, thanks to the activity of Surgeon-General Gorgas and Col. V. P. Blair, men who do beautiful work in such fractures. One point of which Dr. Blair spoke is that of using Thiersch epithelial grafts for replacing the mucous membrane in the mouth. That is a great improvement in oral plastic surgery. Those of us who do plastic surgery know that if one takes mucous membrane from the lower lip and sets it in the orbit after enucleation of the eye to enlarge the socket for glass eye, the mucous membrane graft will grow in the eye socket, although the wound is not truly aseptic. To know now that Thiersch skin grafts may be substituted for the mucosa is a great gain.

Dr. Vilray P. Blair, St. Louis: Until the special reports are obtained from abroad it will be impossible to say how many of these injuries we had, but we probably had about 2,500. The great majority of these cases occurred after July 15, 1918. We have returned to this country less than 600 men. Of these 280 are already discharged.

URETERAL TRANSPLANTATION IN INOPERABLE CONDITIONS OF THE BLADDER *

WILLIAM E. LOWER, M.D.
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Perhaps no class of patients makes a more piteous appeal to the surgeon than those with inoperable new growths in any location. And perhaps saddest of all are those patients with growths of the bladder in which the irritation and pain are constant and intense and a resection cannot be made, because either the entire bladder is involved or the area around the internal sphincter—conditions which preclude the possibility of a resection and restoration of function. In most of these cases the suprapubic drain does not give the desired relief, for it does not prevent the urine from coming through the bladder and flowing over the raw and ulcerated surfaces. Even large doses of opium do not afford much relief. The only possible method by which any relief can be secured is by preventing the stream of urine from passing through the bladder.

This may be accomplished by transplanting the ureters into one or two practical locations—into the loins, or into some portion of the large intestine, preferably the sigmoid or rectum as near the bladder as is possible.

If the ureters are transplanted into the loin, a mechanical contrivance to catch the urine is required; and even the most convenient appliance for this purpose is not, as a rule, satisfactory. On the other hand, if the ureters are transplanted into the large intestine, the patient is subjected to but little annoyance, for the sphincter ani becomes adapted to the new condition, and effectively controls the urine.

Various kinds of technic, etc., have been devised, perhaps the best of which in suitable cases is that of Coffey. The operation is preferably performed in two stages, transplanting one ureter first and then waiting a sufficient time to be sure that the ureter is functioning in its new location, and to allow the sphincter ani to become adapted to the new condition, when the second ureter is transplanted. Preferably the right ureter is transplanted first, as, if adhesions follow, as they often do, the rectum becomes more or less fixed and cannot so readily be drawn into the cut.

In certain cases, at a third operation, the entire bladder may be removed and the patient's comfort be still more increased and life also materially length-

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ened. I have performed this final radical operation in two cases after transplanting the ureters. One of these patients survived for two and one-half years and during most of that time was able to carry on his normal vocation, while previously he was unable to do so because of the great pain and frequent annoying urination. I lost track of the second patient six months after the operation, and have not been able to ascertain how long he survived. In both these instances, the relief was immediate, and the operation was fully justified.

In two other cases, the ureters were transplanted simply for relief, for the growth was so extensive as to preclude the possibility of a more radical operation. In neither of the latter cases did the patient survive for any great length of time, but in each the patient was relieved of his previous annoying symptoms.

The intense relief to the patient from an almost intolerable condition seems to me to indicate that this method should be adopted in those extreme cases which cannot be relieved by any other operation. If these patients present themselves early enough for a complete extirpation of the bladder after the ureters have been transplanted, the life may be much prolonged and occasionally a complete cure is accomplished.

The division of the operation into two stages—or three, if extirpation of the bladder is possible—not only affords an opportunity of noting that the ureters are functioning properly, but also aids in conserving the patient by dividing the trauma of the massive operation.

REPORT OF CASES

I. TRANSPLANTATION OF URETERS WITH EXTIRPATION OF THE BLADDER

CASE 1.—A man, aged 42, consulted me in July, 1916, because of pain in the small of the back, blood in the urine and frequency of urination. There was difficulty in starting urination, and much pain until the clots of blood were passed. Frequency of urination had increased until the patient was obliged to void every twenty or thirty minutes. The patient thought he had lost about 30 pounds since he first felt symptoms of his present illness in the preceding March. A mass could be felt in the region of the bladder. No satisfactory cystoscopic examination could be made.

July 31, an exploratory operation disclosed a large infiltrating, indurated mass which seemed to involve the whole of the bladder and, at one point, extended through the wall. As nearly every point of the bladder appeared to be involved, resections of any part seemed impossible.

August 8 and 22, respectively, the right and the left ureters were transplanted into the rectum.

September 15, the final operation was performed, in which the entire bladder, which was almost filled with an extensive carcinoma involving the internal sphincter, was extirpated. September 30, the patient was discharged from the hospital. He was feeling much better; the pain was relieved, and he had fine control of the anal sphincter. This patient survived for two and one-half years, returned to his work, and was quite comfortable until the growth recurred in the peritoneal cavity and involved the intestine.

CASE 2.—A man, aged 53, was first seen in January, 1917, having been transferred from the Medical Service at Lakeside Hospital, as he was thought to have some prostate trouble. He complained of much pain in the left kidney region. Cystoscopic examination disclosed a growth of considerable extent occupying the right side of the bladder in the neighborhood of the right ureter and involving the most of the internal sphincter.

February 6 and March 3, respectively, the right and left ureters were transplanted into the sigmoid.

March 27, the final radical operation was performed, the entire bladder being extirpated. The growth was a carcinoma.

April 8, the patient was discharged. All drainage tubes had been removed; there was a very slight discharge of seropurulent material. Discomfort had almost entirely disappeared and the patient had good control of the anal sphincter.

The patient was last heard from six months after the operation, at which time he was comfortable and in good general condition. How long he survived after that I have not heard.

II. TRANSPLANTATION OF URETERS WITHOUT EXTIRPATION OF THE BLADDER

CASE 3.—A man, aged 50, was first seen in January, 1915, when he gave a history of frequency of urination for thirty years. He stated that ten years previously he had been operated on for an abscess between the rectum and the bladder. Lately he had passed gravel, and the frequency had been more marked. At this time and again in November of the same year operations for stone in the bladder were performed.

In March, 1919, the patient returned with the same complaint of frequency, which had become much aggravated during the preceding three or four months.

March 11, an exploratory operation disclosed a hard nodular bladder about the size of an orange. Numerous nodules varying from the size of a pea to half an inch in diameter were found within the bladder wall and on the peritoneum. No further metastases were found, though they undoubtedly existed.

It was obvious that the only aid which could be given the patient must be palliative through the transplantation of the ureters. Thereupon, March 22, and April 3, respectively, the right and left ureters were transplanted into the sigmoid. The patient survived only a short time, but was entirely relieved of the pain while he lived.

CASE 4.—A man, aged 57, seen in October, 1918, first began to suffer from frequency and burning of urination three years before. During this period he received continual medical treatment and was relieved at times.

In July, 1918, blood began to show in the urine. At times the patient suffered from dribbling, but never had complete incontinence. Cystoscopic examination revealed a massive growth in the bladder.

October 3, a suprapubic cystotomy disclosed a large cauliflower fungating tumor mass, growing from the base of the bladder, the limits entirely occupying the bladder capacity. As in our other cases here reported, it was obvious that the best we could do would be to supply what comfort we might to the patient by transplanting the ureters. Therefore, October 11 and 23, respectively, the right and left ureters were transplanted to the sigmoid. The patient lived only two weeks after the second operation, but it supplied the only relief he had had for six months.

In all these cases the kidneys were involved.

CONCLUSION

The transplantation of ureters for inoperable malignant growths of the bladder is not new, but it has not been as common as it seems to me it might be; and in the occasional case, a complete extirpation of the bladder may be done not only with the promise of prolonging life, but with the possibility of an occasional complete cure.

ABSTRACT OF DISCUSSION

DR. B. A. THOMAS, Philadelphia: My experience is limited to a few cases, in some of which the ureter was transplanted into the loin by the process of ureter fistulization. In others a bilateral nephrotomy was done; and in still others the ureters were transplanted into the bowel. It seems to me that we can, perhaps, entirely exclude the utility of ureteral fistulization in the loin. In my own experience every patient died very shortly afterward of pyonephrosis by reason of the poor drainage which seems to be obtained by that method.

Therefore, we have to decide between a bilateral nephrotomy or a bowel implantation. Dr. Lower referred entirely to malignant conditions of the bladder, that is, carcinoma. These patients will not live a long while. In a few weeks, or a few months, or occasionally a year or so, they will die of an ascending renal infection. Bowel implantation is the preferable procedure, so far as the comfort of the patient is concerned. Therefore, I believe it should be selected in all cases of carcinoma of the bladder, where longevity is in doubt anyhow. The patient will be more comfortable. However, in a condition such as multiple papilloma or degeneration of the bladder, we might resort to loin nephrostomy and obtain a better result.

HYPERTENSION IN WOMEN*

DAVID RIESMAN, M.D.
PHILADELPHIA

The habitual use of the blood pressure instrument has brought me a number of surprises, none greater than the frequency with which hypertension occurs in women. The majority of the cases can be classified in a distinct and definite group having the following features in common:

1. The patients are usually stout, overweight and undersize.
2. They have borne many children.
3. They have neither a history nor any stigmata of syphilis.
4. They are over 45 years of age, the greater number falling between 50 and 60 years.
5. They are practically all constipated and some of them suffer from intestinal indigestion.
6. Up to a certain point they show an amazing tolerance to pressures of high degree.
7. In most instances the heart is enlarged, chiefly to the left.
8. The arteries are soft and even the retinal vessels rarely show any involvement.
9. The kidneys, as far as it is possible to determine, are competent.

The absence of gross renal and arterial changes has led writers to speak of such hypertension as essential, a word of little meaning though quite adequate for concealing our ignorance of the cause of the trouble. A similar hypertension is met with in men; but in them it is less frequent and in general less innocent.

When we come to search for causes, the points that stand out prominently are:

1. Multiple gestations. In nearly every case there have been not only two or three, but often five and six children. I have gotten the impression that the worries incident to raising a large family may count for no less than the repeated pregnancies. Inquiry has not elicited a history pointing toward any noteworthy abnormalities either in the pregnancies or in the lying-in periods.

2. Worry. Serious worry is rarely absent: on the one hand, heavy household cares; on the other, special trials and tribulations of the soul.

3. Constipation and intestinal indigestion, especially of the flatulent variety. Just what share to assign to these it is difficult to say. They may play a very important rôle as possible sources of autointoxication. I have, however, seen hypertension of this type in women in whom there was perfect function of the alimentary canal.

4. The menopause. The hypertension begins in such a high percentage of cases during the menopause that this constitutes an unquestionable etiologic factor. The relationship suggests the thought that this form of hypertension in women is based on some endocrine disturbance, not improbably arising in the ovary. Nearly 50 per cent. of the patients were widows.

Whatever the cause may be, whether it is of endocrine origin or some toxic substance made in the intestines or the slow poisoning from a focus of local infection, the effect is an increased vascular tonicity which gradually leads to an actual thickening of the muscular coat of the vessels.

It is interesting to note the symptoms presented by the patients in the early stages of the disease, the inaugural symptoms, to employ a useful phrase of Moynihan's. They are dizziness, ringing in the ears, dyspnea on effort, anginoid pains, palpitation, gaseous distention, and vasomotor disturbances. Though several of these symptoms may be found in the same patient, the disease is often monosymptomatic in the beginning. In a very large proportion of cases the complaints, such as brachial neuritis, sciatica, migraine, have no apparent connection with the hypertension.

The chief physical findings are as follows:

The complexion is usually florid; obesity is practically constant; the area of cardiac and of aortic dulness is increased; a systolic murmur at the aortic area, transmitted upward and into the clavicles, and a ringing second aortic sound are common findings. In the later stages a soft systolic murmur can often be heard at the apex. The temporal arteries may be tortuous, but as a rule they are not conspicuous in women. The peripheral arteries are soft, in striking contrast to the blood pressure. An almost constant finding in patients of this type coming to the office is a slight elevation of temperature, between 99 and 100 F.

The average age of the patients was 54 years. The youngest patient was 43, the oldest, 71. The average systolic pressure was 211; the average diastolic pressure, 105; the average pulse pressure, 106; the highest systolic pressure, 310; the highest diastolic pressure, 160, and the highest pulse pressure, 150.

The highest tension, that of 310, was found in a woman, aged 46. Her sole complaint was dizziness. The year previous she had had a uterine hemorrhage. The physician who brought her to me and I myself were completely taken aback when we found the tension so high. From the woman's complaints we had not been led to expect it.

Another patient had a systolic pressure of 290, normal urine, normal eye grounds, and was well and active. She was able to play golf and had practically no complaint save ringing in the ears.

Of course, the type of hypertension I have described is not the only one met with in women. Chronic nephritis with high pressure is fairly common. It may be set down as a general rule that hypertension in women under 35 is practically always nephritic; it gives a bad prognosis, much worse than any other form of hypertension. In some of the nephritic cases the arteries are soft and impalpable; in others, they are hard, tense and rigid. Strange to say, the latter condition is more frequent in the younger patients.

There is, furthermore, the arteriosclerotic group in which the etiology, symptoms and course do not differ from those of the same disease in men.

* Read before the Section on Practice of Medicine at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

I shall merely mention, without further comment, hypertension in acromegaly and in exophthalmic goiter. I want, however, to say a few words about a closely allied type which I would call non-goitrous thyrotoxic hypertension. This form is of considerable clinical interest; like the one of which I spoke first, it occurs with preponderating frequency in women. The patients are near or past the menopause, are not overfat, sometimes spare, often single. They complain chiefly of palpitation and headache; are emotional, and have a tendency to sweating. The heart is rapid, even to the point of tachycardia; the hands are tremulous. There is often a von Graefe sign, but no exophthalmus and no goiter or other tangible abnormality of the thyroid gland. The systolic pressure ranges from 150 to 210, with a diastolic pressure of from 90 to 120. While there is no positive proof of a thyroid cause, and while the patients are nearly all beyond the age at which hyperthyroidism usually appears, the symptoms nevertheless closely resemble those of a thyrotoxicosis. To be sure, the condition may be pluriglandular in origin. It is apparently not renal or arteriosclerotic. A point of interest and in a sense contributory evidence of thyroid origin is the fact that the iodids do not benefit but rather harm these patients. The thyrotoxic form is more incapacitating than the first variety of which I have spoken.

With regard to prognosis, the first type, the so-called essential hypertension, is in a sense benign; even high pressures are well tolerated for many years, as I have pointed out in earlier papers on this subject.[1] Hence, it is both unwise and unnecessary to alarm these patients. Many have been unduly frightened by being told that they had very high blood pressure. Though the physician, in dealing with them, may well be optimistic, nevertheless, for the patients' sake it is important that he keep them under surveillance on account of the possible catastrophes that lie in wait for them. Three major accidents may happen:

1. Angina pectoris, which is much more frequent in women than is believed, and is especially common in the so-called essential type of hypertension. It is probably due to an extension of aortitis to the coronary arteries.

2. Apoplexy with hemiplegia, which latter in the majority of my cases has been left-sided.

3. Decompensation, a late stage of the disease resulting from myocardial exhaustion.

TREATMENT

In this, as in all chronic diseases not definitely infectious in character, our powers of cure are very limited. That being so, the great desideratum is to find means of prevention. To this end we must learn to recognize hypertension in the making and then to remove such removable factors as are concerned in its production. As there may be nothing in the symptomatology in the early stages to attract attention to the circulatory system, there is but one way to discover incipient stages—by routine blood pressure examination and careful determination of the size of the heart. A comparison of records made at intervals would then show us in which patients the pressure was on the upgrade.

In the treatment of the established condition, harm may readily be done by too much interference. Just as we have gotten away from using digitalis on the mere discovery of a murmur when the valvular defect is compensated, so we should not try to lower the blood pressure to any great degree in patients in whom the hypertension is well borne—in whom it is adequately compensated. If the patients know that they have high blood pressure, one may honestly assure them that the dangers of this symptom have been overemphasized.

Regulation of the diet is necessary, more often in the direction of quantity than of quality. I have found this class of patients as a rule to be heavy eaters, and have come to feel that they do better on a restricted diet, especially on one that is largely lactovegetarian. A lamb chop, a little chicken and fresh fish are permissible. Rest, at times a semirest-cure, is desirable in many instances. In some persons, however, graduated exercise, walking and moderate golf playing may safely be advised.

With regard to drugs, I am not in the habit of using them as a matter of routine. The nitrites are not indicated in patients who do not suffer from their hypertension. Though high-geared, the circulation may be well maintained and vasodilators only serve to upset the equilibrium. The iodids may be used in the essential type of hypertension in small doses over a long period. Lately, I have secured apparently striking results from the use of corpus luteum extracts. The pressures were lowered without any untoward effects, and the subjective symptoms were markedly improved.

Baths and electricity may at times be employed with benefit. When the cases approach the danger line, nothing is so valuable as venesection; when this cannot be done, then leeching from the mastoid process is a very good substitute.

In the thyrotoxic cases, rest is of the greatest importance. Patients of this type should take their breakfast in bed and lie down for an hour or an hour and a half after the noon meal. Tea and coffee should be forbidden. Medicinally, the bromids, at times, with small doses of tincture of veratrum, seem to do good. I may add that in the dizziness of hypertension, tincture of veratrum has often given me very satisfactory results.

The patients of all types of hypertension should be urged not to worry, but the mere injunction "not to worry" carries small weight. It is necessary for the physician to analyze with judgment and with great patience the worry-breeding conditions of the person's life and to convert his patient, if possible, to a more philosophic attitude. By considering all the details of the patient's daily life, one may often point out definite ways of easing the strain.

ABSTRACT OF DISCUSSION

DR. JOSEPH H. PRATT, Boston: Dr. Riesman has done well to emphasize the tolerance with which high blood pressure is borne for a number of years by certain patients, especially by women of middle age and above who exhibit no signs of renal disease. The cases I have studied of high blood pressure with normal renal function may be divided into three groups: 1. Vasomotor neurosis with transitory hypertension. The blood pressure is unusually labile. Slight emotion produces a marked rise. These cases are properly regarded as neurasthenia with vasomotor disturbances. The rise in blood pressure is attributed to vasomotor spasm. Other symptoms due to spasm of the vessels are frequent 2. Primary permanent hypertonia. Elevated blood pressure may be the only sign of disease and there may be no subjective symptoms. Most of the patients at the time they come under observation have enlargement of the heart. I

1. Riesman, David: Penn. M. J. **18**: 193-202 (Dec.) 1914; Am. J. Obst. **71**: 428-133 (March) 1915; Am. J. M. Sc. **165**: 487-494 (April) 1913.

have seen cases, however, in which there was no evidence of cardiac hypertrophy. Dr. O'Hare, in an unpublished study, has found in hypertonia without renal disease a marked increase in the blood pressure after an injection of epinephrin. This indicates a state of increased tone in the sympathetic nervous system. 3. Localized arteriosclerosis with hypertension. In a large number of cases in this group of localized arteriosclerosis there is evidence of cardiosclerosis. As Dr. Riesman states that in his cases there is an increased area of aortic dulness and a systolic murmur at the base, as well as an enlargement of the heart, it would seem as if they should be placed here. Is the hypertonia primary and the heart hypertrophy secondary, or are the physical signs of involvement of the heart found in the earliest stage? Orthodiagrams and teleradiograms of the heart taken at intervals beginning, if possible, before hypertonia developed and continued over a series of years, would yield information of value. As evidence of emotional instability of the blood pressure is such a marked feature in essential hypertonia, it may be that some of the cases with transitory elevation of blood pressure tend to pass into the second group characterized by a persistent hypertonia. Cases of this type sooner or later exhibit definite signs of localized arteriosclerosis and then belong in the third group. This progression from one group to the next indicates that we may be dealing with different stages of the same disease process which begins with a transitory spasm of the vessels and ends with widespread arteriosclerosis.

Dr. Louis Faugeres Bishop, New York: The whole question of the disposition of these very high blood pressure people is so important that it is well to emphasize some practical points in their care. What shall we do with these people so that they will live for a long time? For the last twelve years I have done nothing but treat blood vessel and heart cases and refer now to pressures of from 210 to 260. I have taken care of many of these persons for long periods of time. And there are certain things that are absolutely the best for them. In the first place, I would select the best remedy of all as outdoor exercise. If you can get these women with very high blood pressures and all the nervous symptoms and everything else that goes with them to take a long walk every day, you have won half the battle in taking care of them, because exercise is the best heart stimulant in the world; it is the best lung stimulant; it is the best kidney stimulant; it is the best antidote to worry. Next to that I would place diet. The most essential element in the treatment of this group is the exclusion of eggs from the diet. Some are sensitive to eggs, but not all of them. But, as a matter of strategy, the exclusion of eggs is essential. If you exclude eggs from the cooking, you exclude a great deal of the protein. In our present economic status eggs are very objectionable, because of poor quality. Of course, excess of meat should be avoided. The third important element is care of the intestinal tract. Most of these people are laxative fiends. They have been taking laxatives all their lives and they suffer from autointoxication which comes to people who abuse laxatives. Castor oil is the best of all. I give them a full dose on alternate nights for a week, then skip a week, then two weeks, then three weeks and then advise a full dose once a month as long as they live.

Dr. J. M. Anders, Philadelphia: The fact is recognized that chronic hypertension is of the greatest aid in the recognition of chronic nephritis. It is important to recollect, however, that this symptom has not quite the same value in the female as in the male, for the reason that the female hypertension of vasomotor toxic origin is more frequent than in the male. We meet with many cases of chronic hypertension at the time of the menopause due to endocrine causes, and most of them are quite independent of the group so well described by Dr. Riesman. Then again in true exophthalmic goiter, and also in the cases which have been referred to by Dr. Riesman, as "thyrotoxic symptoms without thyroid disease or exophthalmos," we have instances of chronic toxic hypertension under conditions that do not lead to chronic nephritis as a rule. There is a form of chronic myocardial disease, with which chronic hypertension is often associated, in which there is more or less myocardial insufficiency, but the blood pressure is abnormally high. There is a vasomotor compensatory mechanism operative in such cases; this is practically proved by the fact that as you strengthen the myocardium the blood pressure falls. This particular variety of myocardial disease is more common in the female than in the male. These subjects are often obese; they have reached middle life and commonly anemia of the secondary type is found in association; and both the obesity and the anemia must be taken into account in the treatment since both are causally related to the myocardial condition. I have seen several cases which belong to the group first described by Dr. Riesman in which cardiac hypertrophy with hypertension, and the basic systolic murmur, angina and elevation of temperature were the principal symptoms. To the causes which he mentioned of this condition, menopause and mental worry, I would add overeating with insufficient systematic muscular exercise. The murmur is not due to stenosis at the aortic orifice but doubtless to a roughening of the valve segments or of the intima of the aorta. The slight fever is most probably due to an associated aortitis, and if we accept Allbutt's view, the aortitis accounts for the angina pectoris. Of the two cases I have seen which belong to this group one patient died of angina pectoris and the other has recently had her first attack. In regard to the treatment of this condition, I feel that the two most important elements are: first, proper restriction of the diet, particularly the fat-forming elements, and, second, systematic physical exercise, as Dr. Bishop has pointed out, provided the arterial changes referable to the aorta are not too far advanced. If there is extension of the aortitis to the coronaries with marked arrhythmia, then, of course, this question of systematic physical exercise must be taken up with great care and caution.

Dr. David Riesman, Philadelphia: What Dr. Pratt says about sclerosis of the aorta is true. However, though there may be arterial changes elsewhere, the peripheral arteries are usually so soft and pliable that unless one is careful to take blood pressures, the circulation will be considered normal. The patients come to us when they are in the state of hypertension. To detect the earliest stages we must, as Sir James Mackenzie suggests, make complete examinations and take full histories of all patients, even if the complaints are trivial. Reviewing the histories of those cases that develop hypertension, it will eventually be possible to know the beginnings of the disease. Something may, perhaps, be learned from the periodic examinations inaugurated by some insurance companies. Dr. Bishop's observations are most interesting. If I lived in New York I should probably agree with him regarding eggs. I am, however, not in favor of a high protein diet in hypertension cases. Patients have told me that they felt better on a diet largely lactovegetarian and they do not want to return to a meat diet. But in the last analysis it is probably more important to reduce quantity than to alter quality. What Dr. Anders says about taking blood pressures, in order to recognize nephritis, is most important, as the blood pressure often gives us a better idea of the duration and gravity of the disease than the urine. Anemia is sometimes an important feature and patients are frequently helped by treatment directed against the state of the blood. Regarding exercise, I believe there are periods when it is better not to allow it. One must be governed by the response of the circulation to physical activity. In many cases golf undoubtedly proves beneficial, perhaps as much by reason of the mental relaxation as for any other reason.

Itch.—"Itch" is a term frequently applied to occupational disease; thus we hear of grocer's itch, barber's itch, bricklayer's itch, prairie itch, hatter's itch, washwoman's itch, lumberman's itch, sugar refiner's itch, etc. While some of these conditions are incidental, many are the result of occupation. The itching resulting from occupational irritants is sometimes due to the irritation due to repeated friction, sometimes to the effects of chemicals (as acids and alkalis) while under other conditions it is due to infectious processes. —S. Bana Hubbard, M.D., *Monthly Bulletin*, New York City.

SOME EXPERIENCES IN NEUROLOGIC THERAPEUTICS *

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PERKINISM AND BURQUISM

Toward the end of the eighteenth century a Connecticut physician, named Elisha Perkins, aroused much interest among the medical profession and the public, especially the latter, by a pamphlet in which he advocated the use of what were termed "metallic tractors" in the treatment of a variety of diseases. The tractors were small rods of different metals the extremities of which were applied to parts supposed to be diseased. Wonderful cures were reported and exhibitions of the value of the tractors were given throughout the country. The fame of the treatment crossed the ocean to Denmark, England, France, and other parts of Europe. Books and pamphlets concerning it were published, but after a decade or two it passed into innocuous desuetude.

Many years after Perkins and his disciples, at first at Milan and afterward at Paris and elsewhere, one Dr. Burq appeared and advocated the use of metals both in the diagnosis and in the treatment of neurotic affections, his efforts receiving attention under the designations of metalloscopy and metallotherapy. Burq published a small book in 1882. He was taken up by Charcot after he had been extensively patronized by the public.

In the ninth decade of the last century I became much interested in the publications of Charcot and Richer on the subject of hypnotism and also in Burquism, which belonged after all in the same domain. I had a series of metallic disks of uniform size made—of copper, zinc, tin, iron, lead, silver and other metals. These are probably still to be found stowed away in some closet at the Philadelphia General Hospital. For my experiments with gold I generally used a twenty dollar gold piece, which, I presume it is unnecessary for me to explain, was not left at the hospital.

Experimentation was carried on not only as regards the external metalloscopy and metallotherapy of Burq, but also into what was termed internal metallotherapy. Disks first of one metal and then another and another were applied to blindfolded patients, especially hysterics, and when the metal to which the patient responded—that is, which created some peculiar sensation under the point of application—was found, this metal was used to dispel, transfer, or in some instances to produce anesthesia and other phenomena. The method was used in efforts to relieve contractures as well as anesthesias and paralyses of presumably functional type. Sometimes when I found that the patient was responsive to a particular metal, I would administer in addition to the external applications, this metal or some of its salts internally (internal metallotherapy). The results, as might be expected, were somewhat irregular, although at times they were rather striking. Soon, however, I tired of these performances, as of my various experiments in hypnosis, which were often interesting but rarely resulted in any permanent good to the patient. One thing they did was to strengthen the views that I held, even then, as to the importance of suggestion and countersuggestion.

THE SUSPENSION TREATMENT OF LOCOMOTOR ATAXIA

Motchoukowski of Odessa published a pamphlet in 1883, describing the advantages of using suspension in the treatment of locomotor ataxia, having arrived at his ideas through the accident of observing a patient suffering from this disease apparently obtain relief from the application of a plaster-of-Paris jacket. Professor Raymond, traveling in Russisa, observed Motchoukowski's results and brought an account of them to Paris.

Charcot, whose endorsement brought Burquism into more or less undeserved repute, was also responsible in considerable part for the attention which the neurologic profession gave to the treatment of tabes by suspension. He and his assistant, Gilles de la Tourette, experimented with Salpêtrière patients with what were believed to be gratifying results. The improvements reported by Motchoukowski and Charcot in some of the ataxic patients were said to be remarkable. Some of these were changes for the better in the Romberg symptom; improvement of gait in walking; diminution of lancinating pains; beneficial effects on sexual power; and better control of the bladder. As might be expected the absent knee jerks and pupillary phenomena were not favorably affected.

Neurasthenia, Friedreich's ataxia, and paralysis agitans were other diseases reported as improved by suspension. The rationale of the improvement was not explained with any clearness. It was supposed, however, that the spinal circulation was benefited and that some stretching of nerve fibers occurred, the latter supposition being altogether doubtful. At that time the fact was not generally recognized, as at present, that locomotor ataxia, like general paresis, is a true syphilitic disease due to the presence of spirochetes.

The apparatus used by Charcot was that contrived by Dr. Sayre of New York in the treatment of his cases of spinal caries by suspension. Charcot first published his results in a lecture given Jan. 15, 1889. It is noteworthy that many patients with tabes reported as having undergone this treatment expressed a sense of having been much benefited by the suspension. This is probably to be explained by the well known optimism of tabetics.

Dr. S. Weir Mitchell, in the *Medical Times*, April 13, 1889, described an improved apparatus for suspension, the chief peculiarity of which was that the suspension was in part made from the elbows, the arms being held to the side by a strap, and additional suspending apparatus being applied to the chin and occiput.

Cases were reported to Philadelphia societies as to many others. The Orthopedic Hospital and Infirmary for Nervous Diseases, of this city, and not a few other institutions, were supplied with suspension apparatus, and some enterprising neurologists saw to it that their offices were similarly equipped. The merry dance—or rather the merry hanging—went on for a time with what was supposed to be advantage to the suffering tabetic. This treatment soon passed to the therapeutic limbo.

THE SURGEON AND EPILEPSY

With epilepsy I have had many interesting experiences, both medical and surgical. I will speak here

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only of the latter. From times remote, considered in the light of a century or a half century, numerous suggestions and experiments have been made regarding the relief and cure of epilepsy. Very early in my professional life I knew something of the efforts that were made on the basis of the old "reflex" hypothesis to rescue the unfortunate epileptic. Children were circumcised; women were deprived of their ovaries and occasionally of the clitoris; a nerve in the hand or the foot or at the root of a tooth or somewhere else, according to the apparent indication, was resected, and much more of a similar sort was done to exorcise a constitutional disorder which refused to respond to the rites employed to banish it.

The term epilepsy is here used in a broad sense to cover several forms of convulsive seizures. Long ago the trephine or trepan was sometimes used without any particular care or skill or selection of site for the relief of spasms. Bloodletting was at one time so heroically employed in the hope of relieving epilepsy as to become almost entitled to be included under surgical procedures.

When, some fifty years ago, the modern doctrine of cerebral localization obtained a sure footing in physiology and neurology, operations soon began to be suggested and performed, the surgeons being guided as to the choice of site by the principles of localization. Cranial fracture, localized hemorrhage, abscess, and tumor became the frequent objects of surgical intervention, often with marked or even brilliant success. It is not my intention, however, to go into this subject at any length. I merely refer to it to introduce a few remarks regarding two or three of the surgical procedures which since then have been generally laid aside.

One of these was cortical excision, which was advocated by Horsley and others, and for which I was sometimes responsible. The idea in these cases was that even in the absence of any clear evidence as to a gross lesion, if the spasm could be shown to be of a local or jacksonian type, trephining should be employed. After fixing the exact center or area likely to cause such spasm by means of faradization of the exposed cortex, this center or area was then excised. On the whole, the operations of cortical excision, of which a considerable number were performed, did not prove successful, although in some instances the spasm did not recur for a long time after the operation. One of the results in these cases was, of course, that a local paralysis in the limbs or part controlled by the centers excised necessarily occurred. This in most cases became less and less marked and would not have contraindicated operation if a positive relief of the spasmodic attacks had been obtained.

I had brought under my observation a number of cases of so-called idiopathic epilepsy in which operation was suggested or in which an opinion was sought as to the propriety of such operation. In these cases jacksonian spasm; that is, a monospasm or hemispasm involving the face or arm or leg, or one or two of these parts, was usually present as part of the general motor paroxysm. I soon learned that a frequent, if not the most frequent, source of so-called jacksonian spasm was idiopathic epilepsy, a fact to which attention was called by Collier. As I spoke of the matter in one of my papers, the jacksonian attacks occur inside the general epileptic seizure and their presence simply emphasizes an opinion long since expressed by that great neurologist, Hughlings Jackson, that if epileptic fits were sufficiently well observed it would be found that in nearly all cases such seizures began with some form of local spasm. This, of course, is often overlooked and even acute, sharp-eyed observers, whom I have frequently employed in my wards, have sometimes failed to note its occurrence, so quickly does the initial spasm radiate to other parts and eventually to all portions of the body musculature. In a number of cases which came under my observation and in which I was responsible for the procedure, trephining, guided by these jacksonian manifestations, was used, no lesion being revealed. In some cases, however, considerable benefit in the way of suspension of the paroxysms occurred.

In recent years the surgeon has extended his efforts for the relief of epilepsy to the abdominal cavity. One distinguished surgeon, some dozen years ago, recommended for the relief of epilepsy the operation known as appendicostomy. Various considerations were advanced in the discussion of epilepsy at the time of this recommendation, but into these I cannot take the time to go. They were based chiefly on the idea that epilepsy was due to some form of intestinal toxemia. A hole was made into the intestine in the appendical region, and a course of irrigation of the colon was begun, usually with warm water. This, of course, was at first under the direction of the surgeon himself and of the nurse, but later, in some of the cases in which this treatment was employed, the patient was taught to treat himself while lying in bed, by passing a tube through the opening into the intestine and then allowing slow irrigation to occur, the fluid and whatever it carried with it being received in a bed pan or other receptacle. A very few striking results were reported; that is, cases in which the epileptic or epileptiform attacks had ceased for several months or perhaps longer. So far as I know, no results of absolutely permanent value were obtained. This was a rather striking procedure, but one, it always seemed to me, not likely to become acceptable to the patient who was expected to keep on with this process of irrigation on his own hook.

A western surgeon more recently described the operation of cecostomy which he used in cases of constipation mechanically produced, and also for the treatment of epilepsy. It was practically the same operation as that to which I have just referred, except that the opening was perhaps an inch or two away from the appendical orifice.

The same skilful and distinguished surgeon, in the course of his operative procedures for the relief of constipation mechanically produced, came across some constipated epileptics in whom the frequency of the attacks was much diminished by the operations performed, which were usually on the colon and need not here be described.

Going a little further into the subject of epilepsy, he learned, what I am sure has been the common knowledge of neurologists, that most epileptics were subject to constipation and therefore, perhaps, the constipation and the epilepsy had the relation of cause and effect. He advocated procedures similar to those which were used for constipation in nonepileptic patients. Noting that, while epileptics were generally of constipated habits, the multitude of the constipated were only in rare instances the victims of epilepsy, he found it necessary to look a little further into the subject. Doing this by methods which are well known to the profession, he came to the conclusion that epilepsy was due to

some form of bacterium or bacillus which probably originated in the duodenum, and whose habitat eventually became the great intestine, or colon. The steps that followed were rather extraordinary and yet I suppose logical from the standpoint of this observer. Not being able always to establish a proper fecal current through the torpid, diseased and absorbing colon, he came, in the process of time, to the idea of getting rid of the colon, and in this way the operation of colectomy was introduced, and not a few epileptics were reported as cured or greatly benefited by this extirpating operation.

Personally I cannot help thinking that this large part of our intestinal tract called the colon has some valuable function in the average human being, and while it may be a convenience to the individual at times to have his bowels short-circuited from the ileocecal region to the anus, this procedure may have its physiologic and pathologic drawbacks.

Eventually the surgeon to whom I have referred, because of the negative results of laboratory investigations made by others, and also under his personal supervision, was obliged to withdraw his endorsement of the idea that the special convulsion-producing germ had been found in the intestine.

DENTAL INFECTION AND THE PSYCHOSES AND NEUROSES

Some years ago I presented a brief paper before the Stomatological Society of Philadelphia on "Obsessions Regarding the Mouth and Teeth." After discussing the subject of obsessions in general I gave details of a few interesting dental cases. One patient had the idea that she was suffering from some discomforting affection at the root of a tooth. This was removed. The distress then began to change its dental habitat, and the patient went through a series of tooth-removing campaigns, but still no relief was obtained. When I first saw her she had only one tooth left, and this was soon extracted by a dental surgeon. At last a distinguished oral surgeon engaged in a vain search for her elusive pain by probing the antrum. She became an alcoholic habitué, and eventually died broken down by her obsessions and her excesses.

In another case the mind of the patient was turned to her teeth until they were all removed and plates were substituted, and later, from time to time, no relief being obtained, she had one plate after another made until the number had increased to twenty-two.

It has seemed to me in recent years that the obsessions regarding the teeth have taken possession of the medical profession. Numerous papers have been written about the rôle of focal infection originating at the roots of the teeth in the causation of mental and nervous maladies. Teeth by the score, many of them of excellent quality, have been sacrificed, and in not a few instances cures or great benefit have been alleged as a result of the treatment. The matter is one of much importance, and has been emphasized by my observation of a number of victims of the dental forceps.

Dementia praecox, manic-depressive insanity, epilepsy, neurasthenia, hysteria, and psychasthenia are only a few of the diseases that have been attributed to dental infection.

The usual procedure in private practice is for the patient, who has probably been seen by one or several neurologists or alienists, to seek, because of the wide exploitation of the subject, a physician who is known to lay stress on the importance of tooth infection. The patient is then sent to the roentgenologist, who almost invariably discovers and is able to mark out a series of alleged abscesses, which are in some instances at least, absorptive lacunae, innocuous foci, or mistaken observations. I do not mean to say that real abscesses are never demonstrated, but as one of my dental friends has pointed out to me, these are frequently not to be found even by the probe in the hands of a skilful surgeon. In a majority of cases, however, the teeth are sacrificed on this altar of focal infection.

The tooth extraction sometimes has an unintended outcome. The patient's mind, already obsessional from the very nature of the malady, becomes fixed on the teeth as a source of his ailments, and what is perhaps worse, the same obsession takes hold of the minds of relatives or guardians. After three apparently good teeth had been removed from one of my patients, she, like the first patient cited in this section, became possessed with the idea that the work of tooth extraction should go on, this obsession pursuing her at all times.

In another case of dementia praecox, as I was told by the mother and the caretaker, the boy had his teeth roentgenographed. Nothing was found, but the advice was given that it would be a good thing to remove a couple of teeth anyhow.

One of my medical friends had a rather interesting experience in connection with this subject. An old gentleman, who was not only a patient but a family connection, had suffered with pain in the neighborhood of the sacro-iliac synchondrosis, and had been treated therefor by the usual therapeutic procedures for affections of this locality, with, however, only partial relief. A consultation came about with a physician and a roentgen-ray specialist, and one of the consultants without any examination of the mouth or jaws expressed the opinion that the probable source of the trouble would be found in abscesses at the root of the patient's teeth. My friend, after allowing him to go on with his dissertation a short time, said casually, "It may be, but I must remark that our patient hasn't had a tooth in his head for the last five years."

LINEAR CRANIECTOMY AND OTHER METHODS OF CRANIECTOMY FOR THE RELIEF OF IDIOCY OR IMBECILITY

Lannelongue of Paris[1] reported his experience in two cases of microcephalic idiocy in which he performed the operation of linear craniectomy. One of the patients was apparently benefited, although, as the recorder notes, training of the patient was resorted to in addition to the surgical procedure. My first experience with this operation was with Dr. W. W. Keen of Philadelphia, who, shortly after the publication of Lannelongue's article, began to make use of the operation for cases similar to those described by the French surgeon. The usual procedure was, with certain technical precautions, after lifting a flap of the scalp of sufficient length and breadth, to cut out a strip of bone about one-fourth inch in width and about 4 to 6 inches in length. Dr. Keen published several articles describing his experiences with this operation. As he has recently informed me, he finally gave it up, the results obtained not justifying a continuance of the surgical measure.

1. Lannelongue: L'Union méd. Series 3, **50**: 42 (July 8) 1890.

Dr. C. L. Dana of New York published two articles on the subject.[2] He had the surgeon undertake the procedure described by Lannelongue and Keen with, however, some modifications as regards the character and extensions of the bony removals. Dana, like Lannelongue and Keen, believed that he obtained a few good results which strangely enough he ascribed to the "pedagogic" influence of the surgical procedure. I must confess that this explanation never strongly appealed to me. It seemed to savor of the explanation of the treatment of delusions by the repeated administration of shower baths until the insane subject finally concluded it was better (for the time being, at least) to give up his delusions rather than further endure the punitive measures. These delusions usually promptly returned when the patient was assured he was out of further danger from the cold douching. The operations were also to some extent reminders of the disciplinary measures—carried out with clubs, whips, or even incisions—in order to improve the manners and morals and presumably the intellects of obdurate criminals.

The wonderful theory, however, advanced to support this procedure was usually not pedagogic or disciplinary, but was based on the idea that by removing strips or variously shaped pieces of bone from the cranium the retarded brain of the microcephalic or demimicrocephalic idiot or imbecile would then be given an opportunity to expand and develop. It was sometimes argued that the fontanels and sutures of the infantile skull had closed prematurely, thereby holding in check a brain that would otherwise develop to fair proportions. The argument in favor of the operation, however, was, to my mind, founded entirely on false premises. It entirely overlooked the fact that the arrest of the brain, like the arrest of the skulls in these cases, is due to biopathologic processes, hereditary and embryonal. As my colleague, Dr. James Hendrie Lloyd, once remarked during a discussion of Lannelongue's operation at the Philadelphia Neurological Society: "It is not possible to improve the quality of a bad nut by making a hole in the shell which encases it."

My chief object for recalling this operation, as in referring to much else in this paper, is to show how prone neurologists and surgeons have been to have recourse, without due consideration of principles, to procedures that could not possibly be of any practical service.

Operations in porencephalic and hydrocephalic cases have proved as futile, in my experience, as the craniotomies for the microcephalic. It proved a great temptation to myself, as well as to others, in the earlier days of my localization experiences, to operate in cases of convulsion, with or without mental deficiencies, when the sites for such operations could with accuracy be easily indicated. In the main, these cases were examples of porencephaly, the residua of previous hemorrhages, or of focal encephalitis after various infective disorders. Due consideration was not given to the significance of the cavities, which were in fact in most instances, whatever their origin, conservative or partly protective. Many of the cases ended disastrously, if it can be regarded as disastrous to have such patients perish in the hands of the neurologist and surgeon. In a limited number of cases in which the cysts were shallow some good seemed to result, but in others, if the patients escaped death, there was often an increase in the excitability of the cortex.

Tapping the ventricles for hydrocephalus was in my experience equally lacking in efficacy, even when the operation was accompanied, as it infrequently was, by an imperfect effort at slow compression of the skull.

NERVE STRETCHING

About thirty-five years ago, the operation of nerve stretching for a variety of sensory and motor disorders began to be used. John Marshall in 1883 delivered the Bradshaw lecture before the Royal College of Surgeons of England on "Neurectasy or Nerve Stretching for the Relief or Cure of Pain." This lecture, which was carefully prepared and founded in considerable part on experimentation, helped to give the operation a scientific status. Dr. Christian Fenger[3] of Chicago and Dr. W. W. Keen of Philadelphia, among others, made valuable contributions to the subject of nerve stretching. Unquestionably this operation was sometimes successful in relieving severe pain, especially when it seemed of a purely neuralgic type. The operation was also resorted to occasionally, but with less favorable results, for tabetic pains.

Among the motor disorders in which nerve stretching had varying success, were facial tic and spasmodic torticollis, many cases of the latter affection really belonging in the category of tics, although this was not at first generally recognized. I recall two cases of facial tic in which operation with good results was performed by Dr. Keen. The stretching force exerted in these cases usually amounted to 4 or 5 pounds of weight. The nerve was exposed near the stylomastoid foramen, and the stretching was done steadily—not with sudden force. The first result of this operation on the facial nerve was complete paralysis, the tic disappearing. The paralysis was gradually recovered from, and in one or two instances which fell under my observation, without return of the spasm. This, however, was not the usual result, and the operation was soon largely abandoned. The cause of such tics was either partial nuclear degeneration or a faulty cortical discharge, neither of which could be banished by operative procedure.

I had considerable experience with spasmodic torticollis. One of my earliest papers was concerned with this affection. It is not necessary to tell an audience of neurologists that this is one of the most intractable of diseases. Stretching of the spinal accessory nerve was employed for its relief, but without success. Equal want of success, however, attended other operations, as for instance tying the accessorious with silver wire, sectioning it, cutting the muscles presumably involved, and excising the spinal nerve roots. The lack of success in this operation seemed to be due to the fact that the spasmodic disorder was one which probably had its seat in instability of the motor cortex. When the affection was closely studied it was found to be not a neural or muscular affection, but a disorder of movement involving a group of cooperating muscles.

Shortly after the period in which nerve stretching was advised and resorted to for the relief of pain and local spasms, the operation began to be recommended in the treatment of several forms of sclerosis, as symmetrical lateral sclerosis (a rare affection), dissemi-

2. Dana, C. L.: A. J. M. Sc., New Series **110**: 24 (Jan.) 1896.

3. Fenger, Christian: Collected Works of Christian Fenger, M.D., 1840-1902, Philadelphia, W. B. Saunders Company, 1912, Vol. I.

nated sclerosis, and spasmodic paraplegia. In one of my cases of disseminated sclerosis nerve stretching in the lower extremities by the method without cutting; that is, by forcibly flexing the extended leg on the trunk, was used, and no beneficial result having been obtained, Dr. Keen stretched the sciatic nerve by a cutting operation in which after exposing the nerves he subjected them to a slowly continued pull corresponding to about 25 pounds of weight. This operation, as might have been expected, also resulted in failure.

Looking backward on these surgical procedures, their futility is easily recognized. It is evident that, at the most, they could have only temporarily affected the spasmodic disturbance. In other words, the operation was not based on a proper consideration of the nature of the disease, and therefore was not a really rational procedure.

GLANDULAR THERAPY AND ABDERHALDENISM

Foremost among the methods of glandular therapy to be tried out by me personally was the use of preparations of thyroid. In a well known line of cases these proved invaluable, as in myxedema and myxedemoid and cretinoid cases, in adiposis dolorosa, and in forms of adiposis not of the Dercum type. This treatment in a strict sense was not curative, but when the amount which could be administered without too much constitutional reaction was determined by trial, the various preparations of the glands of the sheep or of other animals were given with continued advantage and sometimes with remarkable success. As a rule, however, it was necessary to keep up the administration as a part of the regular diet of the patient.

In a limited number of cases of epilepsy I have had decidedly beneficial results from the use of thyroid with bromids and arsenic and special forms of diet, as for instance the so-called purin-free diet. In addition to thyroid, pituitary preparations have also proved of value in cases of epilepsy with dyspituitarism.

With preparations of other glands, like testicle, ovary, mammary gland, and suprarenals, my experience has not been promising, although I have seen some benefit accrue from the use of suprarenal or pancreatic extracts, especially in melancholia and epilepsy.

In connection with this question of glandular therapy, that of glandular removal comes naturally into the foreground. Every neurologist and alienist will remember the rage in the early days of safe, that is, of aseptic and antiseptic, surgery for removing ovaries for the relief or cure of neuroses and psychoses. The fashion was so rampant for a time that there promised to be partial race suicide by way of the surgeon's knife. Directly or indirectly, I came in contact with much of this work. My experience might be included in the simple statement that nine tenths of such removals did not result in the relief of nervous maladies. In a considerable percentage of the cases the postoperative mental or nervous state was such as clearly to indicate that the operations had done harm rather than good. These operative procedures in some instances were the source of traumatic affections, especially troublesome adhesions, and in other cases of new or more confirmed obsessions. It is rather interesting to note the contrary manner in which the two sexes were treated as regards the sexual glands. The woman suffering from a variety of mental or nervous disorders had her ovaries removed, while, forsooth, the man afflicted in the same or a similar manner was treated by the administration of testicular preparations. So far as results were concerned, however, it mattered little; one was about as effective as the other.

When a few years ago (about 1912) the investigations and theories of Abderhalden of Halle were published, a new stimulus was given to glandular therapy. I do not feel competent to pass fully on the subject of Abderhaldenism, as I have found it somewhat difficult in the limited time and opportunity at my disposal to determine from scientific considerations the value of the methods both of diagnosis and of therapeutics suggested by a study of the protective or defensive ferments of the body. Some of my own patients, and other patients of whom I have knowledge, have been subjected to these investigations and have had made on them therapeutic applications of the results of such investigations. The cases to which I refer particularly include examples of dementia praecox, melancholia, and hysteroneurasthenia, especially the first.

As the result of painstaking Abderhalden tests, guarded by all the precautions suggested to those who work in this field, certain glands have been determined as most likely to be beneficial because of their supposed or known antagonistic action to other glands, which the investigator has found to be dysfunctioning. Preparations of testicle, for instance, have been used when the pituitary was the offender; of the suprarenal when the suprarenal was at fault; or of the pancreas when the indications were of pancreatic infantilism or deficiency. For instance, certain glands are given to replace a supposed deficiency in the corresponding glands, and their opponents are administered to subdue hypersecretion. Results apparently beneficial but usually temporary were obtained in some of these cases. In a very few instances more permanent results were in evidence. I have never been thoroughly convinced, however, that the clinical course of a genuine case of dementia praecox was halted for more than a brief period—a period similar to that which one sometimes observes in these cases without the use of Abderhalden or any other form of therapeutics.

The observations of Ludlum on psychopathic patients cured or greatly benefited by the use of either acid or alkaline preparations—according to the result of investigations into the acidity or alkalinity of the saliva, urine, stools, perspiration and blood—in combination with preparations of ovarian gland when the blood pressure is high, and of suprarenal extracts when it is low, are of decided interest and open up a field of therapy for the neurologist and alienist.

One of the points which has always impressed me when studying reports of this sort and the theories on which the treatments suggested in such records have been based, is that due consideration is not given the teratologic origin of the affections which it is hoped to cure by changed acidity or alkalinity, or by these combined with the use of glandular preparations. The fact is too often overlooked that the glanduiar condition, and even the state of acidity and alkalinity in some instances, are themselves only a part of an ordained embryonal state which cannot be successfully combated, or at least cannot be attacked with full success on chemical and other theories of such limited import.

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SATURDAY, AUGUST 2, 1919

ANTISCORBUTICS: II

In a previous issue of The Journal,[1] reference was made to some of the experiences which have led to the development of diverse sorts of antiscorbutic products available for the purposes of infant nutrition. It is not necessary to refer back to the older expeditions in search of the North Pole or to the experiences of our Civil War to learn how essential antiscorbutic foods may be to an adult as well as to the growing infant. The changes in our food supplies have altered the dietary habits of mankind;[2] and, although in normal peace times the tendency toward a liberal supply of varied foods is likely to avert widespread deficiencies of essential factors, this is far from being the case under war-time conditions. Scurvy made its appearance in Europe among troops and civilians when the exigencies of the situation in which they were inadvertently placed compelled them to subsist on unsuitable foods. This does not necessarily mean that the energy furnished was insufficient or that the protein was inadequate; but it has shown that even in the midst of plenty the quality of our foods may be dangerously defective.

The knowledge that heat may affect the stability of vitamins and more particularly the antiscorbutic property of foods has focused attention on the effects of cookery, canning and various other modes of food preparation and preservation on the integrity of the accessory food factors. We shall not claim the ability to render a final judgment as to either the safety or the nocuousness of any of the varied methods of conservation. A few references to the outstanding facts ought, however, to serve as an indication of the great uncertainties which have been raised, and the probable considerable significance of the questions at issue for practical dietetics. The keynote was sounded by Holst seven years ago. The striking demonstration of the loss of antiscorbutic potency as the result of desiccation and cooking furnished by Givens and Cohen[3] of Yale with regard to cabbage and potatoes has been substantiated at the Lister Institute in London.[4] We are told that, so far as animal experiments can be depended on to furnish evidence, there is a loss in antiscorbutic properties of more than 93 per cent. when cabbage is dried at a low temperature and stored subsequently for from two to three weeks at laboratory temperature. After drying and storing for from five to six weeks at laboratory temperature, a further loss of antiscorbutic properties is suffered. After storage for three months, nearly all the protective value of the fresh material is lost (about 96 or 97 per cent.). The fact that less loss through desiccation takes place if the product is first steamed or plunged into boiling water suggests at once that something other than mere heating or desiccation is concerned in the deteriorating influences of these preservation processes.

From the standpoint of culinary food preparation, Delf[4] suggests that these facts have some bearing on methods of cooking green vegetables, and indicate broadly that the least loss of antiscorbutic properties will be obtained by cooking green vegetables for a short time at a higher temperature rather than for a longer time at a lower temperature. Hess and Unger[5] have lately reported that carrots lose much or all of their antiscorbutic potency through cooking. They have, furthermore, called attention to the added factor of the maturity of the plant. As they express it, from a nutritional standpoint carrots cannot be looked on as a uniform article of diet. There is a marked difference in various lots of carrots, and probably also of other vegetables, according to whether they are fresh and young, or are old. It was found, for example, that if, instead of employing the carrots which were ordinarily fed to their laboratory animals, they gave the same amount of fresh young carrots, plucked only a few days previously and cooked, not only did the animals not develop scurvy, but they gained steadily in weight for a long period.

Hess and Unger[5] remark that the freshness and age of the vegetables sufficed also to enable them to retain their antiscorbutic potency after dehydration. This is a statement of considerable importance because it points to a further variable that may need to be considered in evaluating food preparations from the standpoint of their antiscorbutic effects. If, to the problem of the effect of heat, oxidation, preliminary treatment and age of the fresh product, there is added the question as to the possible influence of different reactions—of acid and alkali as they occur naturally in foods or are added incidental to their manipulation

1. Antiscorbutics: I, editorial, J. A. M. A. **73**: 271 (July 26) 1919.
2. Mendel, L. B.: Changes in the Food Supply and Their Relation to Nutrition, Yale University Press, 1916.
3. Givens, M. H., and Cohen, B.: The Antiscorbutic Property of Desiccated and Cooked Vegetables, J. Biol. Chem. **36**: 127 (Oct.) 1918.
4. Delf, Ellen Marion: The Antiscorbutic Value of Cabbage, I, The Antiscorbutic and Growth Promoting Properties of Raw and Heated Cabbage, Biochem. J. **12**: 416 (Dec.) 1918. Delf, Ellen Marion, and Skelton, Ruth Filby: The Antiscorbutic Value of Cabbage, II, The Effects of Drying on the Antiscorbutic and Growth Producing Properties of Cabbage, ibid., p. 448.
5. Hess, A. F., and Unger, L. J.: The Scurvy of Guinea-Pigs, III, The Effect of Age, Heat and Reaction on Antiscorbutic Foods, J. Biol. Chem. **38**: 293 (June) 1919.

—the complexity of the project of retaining the antiscorbutic potency becomes more apparent.

This is a time for cultivating the "open mind" in reference to the true nutritive value of conserved foods. If some desiccated vegetables have proved to be devoid of antiscorbutic efficiency, it must, nevertheless, be admitted that the loss can probably be averted entirely or partially when the conditions which determine it are definitely ascertained. Fruit juices have already been concentrated, and tomatoes have already been dehydrated without becoming impotent in respect to the factor under discussion. Hess and Unger assure us that it would be an error to infer from such experiments as are now on record that milk necessarily loses its antiscorbutic potency when it is reduced to a dry state. Enough specific instances of contradictory facts are on record to warn us, on the one hand, against condemning canned goods or dehydrated vegetables or their analogues from the standpoint of their vitamin potency; or of praising any of them without specific information as to each product. The offhand statements which are beginning to emanate from partisan or inadequately informed sources must not be accepted. The time is not yet ripe for "expert opinions" that are all comprehensive in their information. Knowledge in relation to vitamins is in the making. Fortunately, at the point where chemical analysis utterly fails, the physiologic experiment is proving to be a dependable guide. Let us get the facts first of all.

HOW SHALL WHEAT BE USED AS FOOD?

Whether or not our wheat supply is advantageously used depends on a variety of factors, some of which already have been considered. It is evident that wheat flour can be "stretched"; that is, the nutrients can be increased by raising the current extraction of from 70 to 75 per cent., represented by patent flours, to from 85 to 88 per cent. by simply including some of the wheat germ. From the producers' standpoint it must be acknowledged that, owing to the fact that the germ-containing portions spoil more quickly, losses in the trade would undoubtedly occur if all the wheat in America were milled either to a European war standard of from 85 to 88 per cent., or prepared as whole wheat flour and distributed through the American market as at present controlled. Furthermore, even the enthusiast must be forced to admit that breads made from flours of high degrees of extraction have not gained popularity. Taylor,[1] who has had exceptional opportunities to study the war bread situation, asserts that "the revulsion against this bread has been audible in every country; the people have repeatedly petitioned that they be given less bread and better bread." Finally, one cannot overlook the repeated reports that the breads prepared from high extraction flours do not agree with some individuals. Here it must be admitted, however, that apparently the causes for any disturbance of intestinal function may lie in changes produced in the bread by the germ fraction rather than the bran; for thousands of persons use with apparent impunity graham breads made of flour prepared by returning bran to standard flour.

A somewhat novel aspect of the subject has been presented through recent investigations by Osborne and Mendel,[2] to whom we owe fundamental researches on the nutritive value of proteins from different sources. They have shown that flour, when used as the sole source of protein, is inferior to other foods in maintaining adult rats, and especially in promoting the growth of the young, but that when the wheat proteins are combined with about one third of their weight of proteins furnished by eggs, milk or meat, they are so greatly enhanced in value that flour is thus used most advantageously. These investigators point out that, since the nutrients of bran are poorly utilized by mankind, a waste of food, though probably not large, results when the bran is included in the flour.

Although the constituents of the embryo have a high nutritive value, the embryo forms so small a part of the entire kernel, and so impairs the keeping qualities of the flour, that probably the nutritive advantages of including the embryo in the flour are more than counterbalanced by the practical disadvantages. On the other hand, when the bran is used in the production of meat and milk, it is converted into proteins which serve to supplement the wheat proteins in human nutrition far more effectively than bran proteins do. To quote the observations of Osborne and Mendel: "Bran and embryo together form about 17 per cent. of the wheat kernel; the endosperm, from which flour is made, forms the remaining 83 per cent. About one half as much flour eaten with the animal products, in such proportion that one third of the protein is furnished by the latter, is capable of satisfying the protein requirements as when flour alone furnishes all of the protein."

If, therefore, about 80 per cent. of the wheat kernel can be so improved in nutritive value by adding animal products to the diet that a much smaller amount of flour will satisfy the protein needs of nutrition, it may well be that the use of the by-products of milling for the production of meat, milk or eggs will result in a greater economy in the use of flour than if these were used directly for human food. In other words, since by far the greater part of the flour used in this country is eaten in combination with those food products which successfully supplement the nutritive deficiencies of its proteins to a far greater extent than do the bran and embryo of the entire kernel, no practical advantage on this score can be expected by con-

1. Taylor, A. E.: War Bread, New York, Macmillan Company, 1918.

2. Osborne, T. B., and Mendel, L. B.: The Nutritive Value of the Wheat Kernel and Its Milling Products, J. Biol. Chem. 37: 557, 1919.

verting the entire grain into flour. Bread and milk, eggs on toast, and the sandwich in its diverse varieties, represent supplementary combinations that find their justification in the latest scientific researches. Man cannot live on bread alone, even if it be made of whole wheat.

THE DIAGNOSIS OF TUBERCULOUS COLITIS

Tuberculous lesions of the intestine are frequently found at postmortem examinations (from 60 to 90 per cent.) whenever a tuberculous process has existed in the lungs for any length of time. The inevitable lodgment of some of the tubercle bacilli which pass almost continuously along the gastro-intestinal tract of the tuberculous patient is to be expected. Clinical recognition has, however, lagged far behind the reasonable expectancy that postmortem experience seemed to warrant, perhaps because we concentrate our clinical attention so firmly on the pulmonary involvement that we disregard the rest of the body, or explain away possible intestinal symptoms on the basis of the general intoxication; more likely, though, because the great majority of the intestinal lesions, especially if located above the ileocecal junction, give rise to only an indefinite symptomatology.

Even with our attention focused on the abdomen as a result of suggestive symptoms, the means of certain diagnosis are still lacking. The mere finding of tubercle bacilli in the stool is of no value, for in virtually every open pulmonary case we get the same result on careful examination. This uncertainty is the more unfortunate because medical or surgical aid, if it is to be of value, depends entirely on the early recognition of the disease extension. When once the stage of distinct abdominal tenderness, of severe pain and of intermittent diarrhea has been reached, our corrective measures are virtually useless.

As an aid in just this situation, Brown and Sampson[1] emphasize the value of systematic roentgen examination as a routine measure in tuberculosis, basing their conclusions on a study of 110 cases. Two definite observations have been contributed by them: In tuberculous ulcerative colitis there exists a well marked hypermotility of the large intestine, particularly of the cecum, together with a distinct spasm of the cecal musculature. These findings, when observed in a tuberculous patient, with or without definite abdominal symptomatology, seem of considerable diagnostic importance. In the clinical and roentgen correlation, Brown and Sampson found that of sixty-eight moderately advanced pulmonary cases, forty-four were negative, fifteen doubtful and nine positive on roentgen examination. Of the nine positive cases, four were proved positive at operation and five cases did not come to operation. Of twenty-two far advanced pulmonary cases, five were doubtful, the balance positive. Of these positive cases, nine were verified at operation, three resulted fatally, and five did not come to operation. Contrasted to these moderately advanced and advanced cases, the examination of incipient cases (eleven in number) yielded only three that were positive. Of these, one was proved at operation, one terminated fatally, and one did not come to operation.

While our diagnosis of tuberculous colitis has thus advanced considerably in this regard, the recognition of tuberculous ulceration of the intestine above the colon is still a baffling problem and one that, for the time being, will bring into demand the greatest amount of medical judgment and careful analysis of the patient. It is unfortunate, too, that therapy (apart from surgical measures), even when considered merely from the standpoint of amelioration, is quite unsatisfactory. Saxtorph[2] suggested the intravenous injection of calcium chlorid, and Fishberg[3] has reported some success in a limited number of cases. At times a single injection (5 c.c. of a 5 per cent. solution) is said to relieve the distressing intestinal symptoms. When, however, the ulceration is extensive and the inflammatory reaction about the lesion includes areas of localized peritonitis and of adhesions to neighboring viscera, the chance even for palliative measures is poor.

1. Brown, Lawrason, and Sampson, H. L.: The Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis, J. A. M. A. **73**: 77 (July 12) 1919.

FACTS AND FANCIES CONCERNING LACTATION

What incites the development of the true secretory tissue of the mammary gland and provokes the process of lactation continues to be an interesting subject for speculation despite the attempts of numerous investigators for years past to solve the riddle. There seems to be convincing evidence that the development is not necessarily evoked by the central nervous system; for there are duplicated records of the growth of the glands and the secretion of milk at parturition in animals in which all nerve connections of glands were severed during pregnancy. Current tendencies in physiology have given free play to the hormone hypothesis which assumes the liberation and distribution, from some gland or organ, of a chemical substance which acts as the stimulus to the elaboration of the mammary function. The uterus, placenta, fetus, corpus luteum and other structures have been called on in turn to account for the liberation of the galactagogue. They have been alleged to act as the sources of excitation or inhibition; and, indeed, many of the theories concerning mammary development can marshal potent facts in their defense. Now and then, however, nature furnishes a stumbling block which

2. Saxtorph, S. M.: Ugesk. f. Læger **80**: 1763 (Nov. 7) 1918.

3. Fishberg, Maurice: Calcium Chlorid as a Palliative Agent in the Treatment of Intestinal Tuberculosis, J. A. M. A. **72**: 1882 (June 28) 1919.

furnishes the occasion for investigations in new directions.

A recent instance of a well authenticated observation illustrating the inadequacy of current hypotheses is cited by Hill[1] of the Maryland Experiment Station. A suckling kid spontaneously commenced to secrete milk without having reached sexual maturity, and without udder manipulation or any other known stimulus to mammary growth. There are on record numerous instances in which young animals have been brought into lactation by being suckled or by having the udder manipulated; hence the oft made assertion that a mechanical stimulus is a fundamental factor in the genesis of milk secretion. The kid observed by Hill, however, had not reached sexual maturity, so that, as he points out, any theory of mammary growth or milk secretion involving the ovaries, corpora lutea, fetus or placenta is not applicable.

Of further interest in this rare case is the observation that the nonremoval of the milk for nineteen days from the lactating kid did not inhibit the secretion as it commonly does in analogous cases of adult milk producers. The milk produced had the composition of normal goat's milk for months, even when the animal was milked at intervals one week apart. None of the milk secreted resembled colostrum. Hill suggests that colostrum secretion must be caused by some special stimulus due to pregnancy and is apparently not associated with the commencement of milk secretion, as was formerly supposed, unless there is an accompanying pregnancy. Here are unique facts of a sort that could doubtless be multiplied if attention were concentrated on the subject. Even with the aid of the obscure and undemonstrated theories of the newer endocrinology, who shall venture a tenable physiologic explanation?

Current Comment

WATER SUPPLY IN PALESTINE

The reclamation of Palestine by the British has at last fully opened the Holy Land to the enterprise of the West. Captain Carson, of the American Red Cross Commission which followed General Allenby, tells us that the first problem of improvement encountered was that of water supply.[2] That part of Palestine south of Beersheba has been piped with water from the Nile by British royal engineers with American equipment—the realization, it is said of a dream thousands of years old. "Several million gallons" a day are pumped from the canal near Kantara across the Suez Canal into Palestine. At Kantara, rapid sand filters are used. The pipes are laid at least 18 inches deep in the soil or sand of the desert in order to protect them and the water from heat. North of Beersheba there is plenty of water under the surface, though very little, owing to the geologic formation and meteorologic conditions of Palestine, remains easily available. On the western slopes, however, the valleys form excellent reservoir sites for collecting the winter rains, though they would often have to be treated to prevent loss by percolation. The problem of the water supply of Jerusalem has been attacked by such noted men as Hezekiah—who constructed a tunnel which is today an "almost unexplainable" engineering feat—Solomon, Pontius Pilate and Herod. In the spring of 1918, the British, using much of the Roman work, installed a 6-inch line from the springs of Wady-el-Arub, about 16 miles south of Jerusalem, through which more than 200,000 gallons a day are now flowing into the city. It is said that Jerusalem could be furnished with more than 20,000,000 gallons a day of pure water. Almost every house in the city has its rainwater cistern, and these, with proper inspection by the newly organized health department, are being filled with safe water. It is to be expected that the disappearance of the picturesque water venders of Jerusalem will be accompanied by the passing of the terrible water-borne diseases prevalent under Turkish rule.

THE THERAPY OF BUCCAL CANCER

Connected with the subject of the therapy of buccal cancer are two great factors. The first is that of early diagnosis—a factor of paramount importance in any case, but in none more so than in cancer of the buccal cavity. There is little excuse for failure in this respect, yet it is of frequent occurrence. There still are physicians who profess a great "fear of the knife," and are willing to carry patients for weeks and months until the disease has made such progress that the use of a knife does, indeed, become a fearsome thing. There is a second group of men, intelligent and honest, who, because the patient gives a history of chancre or a positive blood Wassermann reaction, forget the possibility of cancer in the presence of an ulcerating sore on the tongue and lose precious time in a vain endeavor to cure the lesion with arsphenamin and mercury. The second factor to be considered is the exceedingly rich lymphatic supply of the mouth and neck. This is important for two reasons: first, the possibility of early, deep-seated metastases, and second, the difficulty which it adds to efficient use of the roentgen ray and radium. Every one is familiar with patients in whom clean excision of a cancer of the mouth associated with persistent postoperative raying of the neck by competent roentgenographers has nevertheless been followed by the early appearance of deep cervical metastases. Since the roentgen ray exerts its influence in limiting cancer metastases by causing proliferation of connective tissues and of the endothelial cells of lymphatics to an extent sufficient to obliterate the lymph channels and tissue spaces, and also by a direct inhibitory effect on the cancer cells, it is obvious that, to a large extent, the richer and the

1. Hill, R. L.: An Exceptional Case of Milk Secretion and Its Bearing on the Theories Concerning Mammary Development, J. Dairy Sc. **2**: 19 (Jan.) 1919.
2. Carson, H. Y.: Ancient, War-Time and Present Water Supply in Jerusalem, Engineering News Record **82**: 1092, 1919.

more deeply situated the lymphatic supply, the less effective will be treatment by the roentgen ray. This tendency of buccal cancer to cervical metastasis has led to the ultraradical, so-called "block dissection" for its cure, which consists in an attempt to remove the cancer and the lymphatic bearing structures of the neck en masse. High morbidity and mortality from infection, and failure to eradicate the tumor by this method, have caused many surgeons to go to the other extreme and to content themselves with local excision with the actual cautery or some form of high frequency current, and ligation of the external carotid artery, thus attempting to minimize recurrence by starving the tumor, and such limitation of metastases in the neck as may be afforded by the roentgen ray. While this method avoids the danger of infection to a large extent, it also fails to cure. Much has been claimed for radium in the treatment of cancer of the tongue; but while its usefulness as an adjunct to other measures is generally admitted, its dependability when applied by present methods to any but the most superficial lesions is yet to be demonstrated. In the management of buccal cancer we are, therefore, brought face to face with the one great, outstanding fact in present-day cancer therapy, namely, the utter necessity of early diagnosis, without which invasion of the rich lymphatic field of the face and neck places an enormous handicap on curative treatment.

FISH AS A FACTOR IN MOSQUITO CONTROL

The attempt to enlist nature on the side of man in combating man's natural foes has been made with great ingenuity in several well known instances. The importation of parasites preying on injurious insects is a familiar example. The value of the dragon-fly as an enemy of the mosquito has been frequently pointed out, although practical utilization of this factor is difficult. Many writers have regarded the activity of fish in devouring mosquito larvae as offering possibilities for more extensive exploitation. Some pertinent observations on this point have recently been published.[1] As the result of work extending over a considerable period, it is concluded that the top minnow (*Gambusia affinis*) is especially suitable for an anti-mosquito campaign because it seeks its food at the surface where the mosquito larvae dwell; is very prolific and viviparous; frequents areas in which mosquito larvae would otherwise thrive, and holds its own in the presence of predacious fishes, provided it has shallow water for refuge. It is said from first-hand observation to "eliminate the wriggler (i. e., mosquito larva) completely from ponds which are fairly free of protective vegetation and débris." Somewhat similar results were reached by Geiger and Purdy in their observations on experimental mosquito control in rice fields.[2] The presence of the top minnow meant a considerable reduction in mosquito larvae, especially in the roadside ditches. The authors believe, however, that under the special conditions obtaining in rice fields the preference shown by the minnow for the deeper, flowing water along levees and their evident avoidance of the midfield make them a doubtful control measure. This should not affect their utilization under favorable conditions.

1. Hildebrand, S. F.: Fishes in Relation to Mosquito Control in Ponds, Pub. Health Rep. **34**: 1113 (May 23) 1919.

2. Geiger, J. C., and Purdy, W. C.: Experimental Mosquito Control in Rice Fields, J. A. M. A. **72**: 774 (March 15) 1919.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending July 26, there were 11,065 officers in the Medical Corps, a decrease of 690 from the previous week. The Medical Reserve Corps contained 3,015 officers. The total number of physicians discharged since the beginning of the war is 21,457.

Examination to Fill Vacancies in Regular Army Medical Corps

There exist at this time 600 vacancies in the Medical Corps of the Regular Army. A circular just issued by the Surgeon-General's Office announces the holding of an examination on Aug. 25, 1919, for the purpose of filling these vacancies. Applications will be received up to August 16, but consideration will not be given to those received after that date. A special circular issued by the Surgeon-General's Office states that vacancies will be filled by appointments in the following order:

a. Emergency medical officers now in service.

b. Members of the Medical Section, Officers' Reserve Corps, who served with credit as officers during the war.

c. Former emergency medical officers who served with credit during the war.

It is required that applicants shall be citizens of the United States, between the ages of 22 and 32 years. All persons desiring to apply should address a letter of application for examination to the Adjutant-General of the Army at once, furnishing the following data: Name in full; date and place of birth; permanent home address, medical school or schools from which graduated; professional experience and military service during the emergency, including the organizations in which served and inclusive dates; present organization, if still in the service; grade in which originally appointed; present grade, if still in the service; date, place of discharge and rank at time of discharge, if no longer in the service; also complete statement of any service as a Contract Surgeon; in the Medical Reserve Corps; or in the Medical Section of the Officers' Reserve Corps.

Applications from candidates still in the service should be forwarded to the Adjutant-General through military channels. After a consideration of the applications, selected applicants will be sent letters authorizing them to appear for examination.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list, L. signifies lieutenant; C., captain; M., major; L. C., lieutenant-colonel; Col., colonel.

ALABAMA

Birmingham—Grace, F. G. (C.)
Hanna, H. P. (L.)
Gantt—Blair, W. M. (C.)
Forest Home—Wall, C. (C.)
Montgomery—Burke, R. P. (L.)
Mason, E. M. (M.)
Smith, J. L. (C.)
Renfroe—Sims, J. A. (C.)
Sprott—Pryor, R. B. (C.)
Troy—Sanders, J. G. (C.)

ARKANSAS

Fort Smith—Bungart, C. S. (C.)
Foster, M. E. (C.)
Helena—Butts, J. W. (L.)
Holly Grove—Johnson, P. E. (M.)
Lockesburg—Musser, J. F. (C.)
Texarkana—Hibbitts, W. (C.)

CALIFORNIA

Alameda—Hall, C. (C.)
Berkeley—Cheney, M. C. (L.)
Coronado—Berggren, T. J. (C.)
Davis—Schoff, C. E. (M.)
Long Beach—Rogers, T. L. (L.)
Los Angeles—Allen, A. (C.)
Dolan, P. E. (L.)
Ray, F. S. (C.)
Van Meter, S. Y. (C.)
Pasadena—Markolf, H. F. (C.)
Portola—Sproat, S. M. (L.)
Riverside—Rolph, W. D. (M.)
San Francisco—Hulen, V. H. (M.)
Watsonville—Watters, H. G. (C.)

COLORADO

Colorado Springs—Forster, A. M. (L. C.)
Denver—Simon, S. (C.)

CONNECTICUT

Hartford—Clason, F. P. (C.)
Monaghan, W. A. (L.)
Story, T. L. (L.)
Kensington—Griswold, M. H. (C.)

Mansfield Depot—Hackett, J. F. (C.)
Meriden—Murdock, T. P. (L.)
Middletown—Gibson, E. T. (L.)
Melvin, G. M. (L.)
New Haven—Barnes, W. S. (C.)
Brides, A. E. (C.)
Waterbury — Kirschbaum, E. H. (C.)

DELAWARE

Wilmington—Pawlikowski, S. B. (L.)

DISTRICT OF COLUMBIA

Washington—Burke, J. W. (M.)
Fischer, M. B. (L.)
Morris, R. T. (L. C.)
Nolan, F. M. (L.)

FLORIDA

Jacksonville—Bowen, F. J. (C.)
Erwin, S. (L. C.)
Pensacola—Ginsberg, H. M. (C.)
Tampa—Marney, C. R. (L.)

GEORGIA

Athens—Stewart, J. S., Jr. (L.)
Atlanta—Clay, G. E. (C.)
Maner, E. N. (L.)
McCord, J. R. (L.)
Reynolds, H. L. (L.)
Wiggins, L. W. (C.)
Augusta—Mulherin, F. X. (L. C.)
Griffin—Miles, W. C. (M.)
Plains—Wise, B. J. (C.)
Quitman—Wade, H. W. (C.)
Sandersville—King, T. B. (L.)
Savannah—Edwards, D. B. (C.)
Lang, G. H. (C.)
Train, J. K. (C.)
Talbotton—Pugh, T. E. (C.)

IDAHO

St. Maries—Platt, O. D. (C.)

ILLINOIS

Alton—Jones, F. W. (C.)
Aurora—Darmer, G. A. (M.)
Carmi—Sibley, F. C. (M.)
Chicago—Andrews, E. (L.)
Aron, B. (C.)
Bailey, A. S. (L.)
Bolka, B. J. (C.)
Busk, R. H. (C.)
Clancy, E. G. (M.)
Favill, J. (C.)
Frederickson, F. O. (M.)
Gapinski, L. B. (L.)
Hirsch, E. W. (L.)
Johannes, H. C. (C.)
Kubik, C. S. (C.)
Lamping, T. J. (L.)
Lee, W. G. (M.)
Link, C. A. (L.)
Little, H. T. (L.)
Little, Z. J. (L.)
Mabee, M. (C.)
McKinley, J. J. (M.)
Morrill, A. B. (M.)
Orr, H. D. (Col.)
Rogers, D. W. (L. C.)
Schott, C. (M.)
Sullivan, R. C. (C.)
Tmompson, W. J. F. (C.)
Weber, A. T. (C.)
Cicero—Savinsky, L. (C.)
Elgin—Dowell, R. F. (L.)
Granite City—Darner, L. D. (C.)
Greenville—Hall, W. L. (C.)
Harrisburg—Nyberg, R. B. (C.)
Harvard—Blodgett, P. R. (C.)
Hopedale—Kunce, F. E. (L.)
Joliet—Krohn, J. W. (L.)
Lanark—Hendricks, E. L. (C.)
Wales, A. H. (C.)
Latham—Bressmer, W. A. (L.)
Lincoln—Coleman, W. W. (C.)
Lowe, C. R. (C.)
Monroe Center — Davis, H. H. (C.)
Mount Morris—Price, C. J. (C.)
Mount Vernon—Hall, C. W. (M.)
Olney—King, R. (C.)
Ottawa—Pettit, R. T. (C.)
Salem—Rainey, W. R. (M.)
Serena—Scheppler, F. E. (C.)
St. Francisville—Snider, R. (C.)
Sullivan—Williamson, O. M. (M.)
Westfield—Houser, H. C. (L.)
West Salem—Weber, T. C. (C.)
Witt—Adams, J. W. (C.)
Woodstock—Windmueller, E. (M.)

INDIANA

Aurora—Jackson, J. M. (C.)
Columbus—Daggy, B. T. (C.)
Dana—Myers, W. C. (C.)
Fort Wayne — Farnham, W. C. (M.)
Hunter, F. P. (L.)
Cary -McMichael, F. J. (L.)
Hebron—Kleinman, F. (L.)
Indianapolis—Bush, E. R. (L.)
Lafayette—Laws, H. J. (L.)
Pearlman, S. (C.)
Ruschli, E. B. (C.)
Markle—Johnston, R. G. (L.)
Muncie—Quick, J. M. (L.)
National Military Home — Kelly, J. E. (C.)
Plymouth—Preston, H. P. (C.)
Solsberry—Deem, F. S. (C.)
South Bend—Goodwyn, T. P. (L.)
Panek, A. F. (L.)
Terre Haute—Bohn, J. C. (C.)
Warsaw—DuBois, C. C. (C.)
Whiting—Newton, E. K. (L.)
Windfall—Chance, B. V. (C.)

IOWA

Akron—Kerr, J. H. (C.)
Burlington—La Force, E. F. (C.)
Carbon—Amdor, W. F. (L.)
Cedar Rapids—Keech, R. K. (C.)
Clarion—Bernard, R. D. (M.)
Davenport—Glynn, C. E. (C.)
Des Moines—Dunlap, W. A. (C.)
Young, G. B. (C.)
Harlan—Dunshee, J. D. (C.)
Maquoketa—Swift, F. J. (M.)
Princeton—Johnson, W. G. (C.)
Redfield—Kleinberg, H. E. (L.)
Sioux City—Brady, J. R. (C.)
Spencer—Taylor, R. D. (C.)
St. Ansgar—Lott, G. A. (L.)
Waterloo—Rohlf, E. L. (M.)
Wauconsa—Smittle, J. M. (C.)

KANSAS

Emporia—Trimble, C. S. (C.)
Fredonia—Thomas, C. A. (C.)
Goodland—Beckner, E. J. (C.)
Great Bend—Lawrence, E. K. (L.)
Harper—Westfall, G. A. (L.)
Hardtner—Hammer, J. E. (C.)
Harveyville—Davis, G. F. (C.)
Hoisington—Atkins, E. H. (C.)
Hutchinson—Hall, C. W. (C.)
Independence — Shelton, F. W. (C.)
Wichita—Walker, F. J. (C.)
Winfield—Guy, W. P. (C.)

KENTUCKY

Campbellsville — Shiveley, O. H. (C.)
Central City — Ferguson, J. M. (C.)
Covington—Prewitt, J. M. (L.)
Cunningham — Robertson, D. S. (L.)
Florence—Grant, J. H. (C.)
Frankfort—Sleet, J. A. (L.)
La Center—Martin, J. W. (L.)
Lexington—Garr, C. C. (M.)
Wyatt, W. S. (M.)
Louisville—Baas, A. L. (C.)
Yenowine, G. H. (C.)
Waddy—Shewmaker, O. F. (L.)

LOUISIANA

Alberta—Archibald, E. E. (C.)
Homer—Wilkinson, J. A. (L.)
Jackson—Levy, E. M. (L.)
New Orleans—Davis, B. B. (C.)
Shreveport — Billingsley, W. H. (C.)
Truxno—James, D. H. (C.)

MAINE

Bangor—Chapman, H. M. (M.)
O'Brien, C. R. (C.)
Brunswick — Lippincott, L. S. (M.)
Portland—Thompson, P. P. (M.)
Winterport—Smith, L. H. (L.)

MARYLAND

Baltimore—Feinglos, I. J. (L.)
Millea, W. L. (C.)
Newport—Jameson, F. E. (C.)
White Hall—Bortner, N. M. (L.)

MASSACHUSETTS

Amherst—Rockwell, H. G. (L.)
Boston—Cook, R. J. (L.)
Dalrymple, A. T. (C.)
Godvin, B. A. (C.)
Hodgdon, F. W. (L.)
Klein, A. (L.)
Brookline — Blanchard, W. H. (M.)
Gilman, C. S. (C.)
King, D. S. (L.)
Cambridge—Dearborn, G. V. (L.)
Charleston—Hurley, D. J. (C.)
Chicopee Falls—Dillon, W. J. (M.)
Gardner—Underwood, G. B. (M.)
Gloucester—Choate, A. J. (L.)
Holyoke—Cox, S. C. (C.)
Hyannis—Chase, H. B. (C.)
Lowell—Alling, M. L. (L.)
Jewett, H. W. (C.)
Manchester—Long, R. W. (L.)
Marlboro—Armstrong, I. F. (L.)
New Bedford—Senecal, R. E. (L.)
North Adams — Carpenter, R. J. (M.)
Northampton—Cobb, C. T. (C.)
Pittsfield—Littlewood, T. (C.)
Quincy—Dolan, W. F. (L.)
Smith, E. E. (C.)
Somerville—Meyer, E. J. (L.)
Springfield—Birnie, J. M. (L. C.)
Deems, O. M. (C.)
Moriarty, P. M. (C.)
Westboro — Walker, M. H., Jr. (C.)

MICHIGAN

Ann Arbor—Beebe, H. M. (M.)
Caro—Bender, F. P. (C.)
Detroit—Bolasny, J. R. (C.)
Kaminski, L. R. (C.)
Kelly, J. F. (C.)
Lippold, P. H. (C.)
Smith, A. L., Jr. (L.)
Dollar Bay—Schulte, R. M. (C.)
Flint—Phillips, R. L. (C.)
Mount Pleasant—McRae, D. H. (L.)
Rochester—Strain, C. S. (C.)
South Hillsdale — Green, B. F. (M.)
Wyandotte—Honor, W. H. (L. C.)

MINNESOTA

Adrian—Cowin, C. C. (L.)
Alexandria—Boyd, L. M. (C.)
Bricelyn—Gullixson, A. (C.)
Detroit—Sorose, B. N. (L.)
Elgin—Bleifuss, W. F. (C.)
Mankato—Hielscher, J. A. (M.)
Minneapolis—Giessler, P. W. (C.)
Knight, R. T. (M.)
Ponemah—Neal, L. G. (C.)
Rochester—Heard, J. E. (C.)
St. Paul—Crothers, B. (M.)
Staley, J. C. (L. C.)

MISSISSIPPI

Columbus—Cox, J. W. (C.)
Duck Hill—Caruthers, S. S. (C.)
Olive Branch—Wilkins, E. L. (L.)
Rara Avis—Paton, E. A. (M.)
Vicksburg—Ewing, J. S. (C.)

MISSOURI

Charleston—Boone, J. C. (C.)
Clarksdale—Elliott, J. R. (C.)
Cole Camp—Schwald, N. A. (C.)
Columbia—Meanwell, W. E. (C.)
Crane—Smart, R. W. (C.)
Joplin—Chenoweth, J. A. (L.) (C.)
Kansas City — Hamilton, H. D.
Powers, J. W. (C.)
Kennett—Presnell, U. A. (L.)
Malden—Beall, H. E. (C.)
Malta Bend—Sewell, M. F. (L.)
McFall—Treasure, B. R. (L.)
Meadville—Clint, M. L. (M.)
Middletown—Floyd, W. N. (L.)
Mound City—Perry, D. C. (L.)
Sedalia—Matlock, W. L. (L.)
Wheeler, W. M. (C.)
Sikeston—Miller, T. V. (L.)
St. Clair—Williams, R. H. (L.)
St. Joseph—Hartigan, F. X. (L.)
Paul, T. M. (C.)
St. Louis—Cameron, S. (M.)
Ferris, D. P. (L.)
Fletcher, P. R. (M.)
Hutton, J. L. (L.)
Lyttle, G. C. (L.)
Pringle, J. A. (L.)
Schumacher, H. W. (C.)
Scott, E. A. (C.)
Timberman, D. (C.)

MONTANA

Forsythe—Huene, H. J. (L. C.)
Great Falls—Madden, W. D. (L.)
Plevna—Baskett, L. W. (M.)
Three Forks — Gaertner, L. P. (L.)

NEBRASKA

Bayard—Rice, G. C. (L.)
Bloomfield—Peters, G. E. (L.)
Burwell—Wood, J. F. (L.)
Clarks—Christie, R. C. (C.)
Columbus—Campbell, C. H. (M.)
Cozad—Fochtman, L. H. (C.)
Dannebrog—Pedersen, H. C. (C.)
Kearney—Gibbons, C. K. (M.)
Omaha—Greenberg, A. (L.)
Lynwood, E. A. (C.)
McLean, E. H. (C.)
Stanton—Peters, W. R. (L.)

NEVADA

Goldfield—Turner, D. A. (M.)

NEW HAMPSHIRE

Concord—Metcalf, C. R. (L. C.)
Hooksett—Togus, L. T. (C.)
Manchester—Powers, J. J. (M.)
Nashua—Black, D. L. (L.)

NEW JERSEY

Bayonne—Cook, J. (C.)
Bloomfield—Pilch, A. G. (C.)
Elizabeth—McCallion, W. H. (L.)
Freehold—Stokes, E. B. (C.)
Hoboken—McKiernan, T. J. (L.)
Jersey City—Cobham, J. L. (L.)
Finneran, M. B. (L.)
Newark—Doremus, W. E. (M.)
Mockridge, O. A. (L.)
Staehle, R. H. (L.)
Oxford—Millick, H. C. (C.)
Passaic—Vreeland, R. D. (L.)
Tenafly—MacKellar, J. M. (L.)
Trenton—West, E. L. (C.)
Union—Quigley, F. J. (L. C.)
Union Hill—Brady, W. A. (C.)
Westerfield — Sisserson, W. W. (C.)

NEW YORK

Auburn—Sisson, L. P. (L.)
Blodgett Mills — Stanton, D. I. (C.)
Brooklyn—Andrews, M. M. (L.)
Bernstein, B. M. (L.)
Blank, J. M. (L.)
Gray, R. H. (L.)
Rynd, C. E. (C.)
Tenopyr, J. (C.)
Weintraub, F. (L.)
Buffalo—Becker, G. A. (C.)
Forrestel, E. P. (L.)
Lewis, J. H. (C.)
Sharp, F. A. (M.)
Zielinski, W. E. (L.)
Cobleskill—Myers, R. E. (L.)
Elmira—Hodgson, F. G. (M.)
Fordham—Lebkicher, W. (C.)
Jasper—Wilbur, L. M. (C.)
Kingston—Sibley, E. F. (C.)
Ludlowville—Allen, I. A. (M.)
Mayville—Young, A. D. (C.)
Mohawk—Williams, H. H. (C.)
Moores—Taylor, A. B. (L.)
New York — Armstrong, E. M. (C.)
Bliss, W. P. (C.)
Bogan, J. (L.)
Boyd, J. R. (L.)
Brown, D. L. (C.)
Brown, S. (C.)
Burns, W. A. (C.)
Camac, C. N. B. (L. C.)
Canfield, A. (L.)
Dodd, R. C. (C.)
Eaton, E. H. (C.)
Epstein, S. (L.)
Hennessy, J. P., Jr. (L.)
Hofheimer, A. (L.)
Janney, N. W. (C.)
Kenney, J. S. (C.)
Korowitz, S. (L.)
Lampe, H. F. (C.)
Lesser, H. R. (C.)
LeWald, L. T. (M.)
Liss, I. E. (L.)
Lowry, T. C. (C.)
Maddox, R. C. (L.)
Martinson, H. (L.)
Marvel, P., Jr. (L.)
McLean, S. (C.)
Mester, C. (L.)
Nardiello, V. A. (L.)
Nicoll, A. (L. C.)
Ornstein, M. E. (C.)
Pomeranz, M. M. (L.)
Robinson, L. B. (L.)
Rowell, R. W. (L.)
Schapiro, J. (L.)
Scudder, G. F. (L.)
Sheinberg, G. (L.)
Siegler, S. L. (L.)
Silkworth, W. D. (L.)
Stam, H. V. (C.)
Stephens, R. (C.)
Stetten, D. (M.)
Varner, H. H. (C.)
Warner, J. W. (M.)
Watkins, H. M. (L.)
White, G. M. (L.)
Wilson, F. N. (L. C.)
Olean—Clark, J. J. (C.)
Ossining—Helm, R. W. (C.)
Rochester—DeVita, M. R. (L.)
Lebendig, A. (L.)
Schenectady—MacDonald, H. (L.)
Ransom, C. C. (C.)
Staten Island—O'Neill, V. J. T. (C.)
Rieger, C. (L.)
Syracuse—Coon, C. E. (M.)
Troy—Connally, E. F. (M.)
Gifford, C. L. (L.)
Utica—Dimon, J. W. W. (L.)
Sullo, N. A. (C.)
Westfield—Willse, H. R. (C.)

NORTH CAROLINA

Charlotte—Austin, D. R. (C.)
Garysburg—Suiter, W. G. (C.)
Raleigh—Pendleton, A. S. (L. C.)
Stevens, R. S. (C.)
Thompson, H. A. (C.)
Statesville — Sherrill, C. L. (L. C.)
Todd—Hagaman, J. B. (L.)
Wendell—Moore, J. L. (C.)
Zebulon—Flowers, C. E. (C.)

NORTH DAKOTA

Brocker—Engesather, J. A. (L.)
Fargo—Hanna, J. F. (L.)
Grand Forks—Johnson, J. A. (L.)

OHIO

Bloomville—Fellers, D. W. (C.)
Cincinnati—Burns, F. M. (C.)
Cross, F. B. (C.)
Krieger, G. M. (L.)
Pfeiffer, A. (L.)
Robbins, E. C. (L.)
Tangeman, H. F. (C.)
Wooley, P. G. (M.)
Cleveland—Forbes, R. P. (C.)
Mahrer, M. (L.)
McGay, N. P. (M.)
Medlin, W. A. (C.)
Quittner, S. S. (L.)
Schoolfield, E. C. (C.)
Clyde—Baker, E. A. (C.)
Columbus—Miller, W. H. (L.)
Jewett—Thompson, R. L. (L.)
New London—Reese, J. W. (C.)
Parkman—Heeley, J. A. (L.)
Portsmouth — Mytinger, G. S. (M.)
Ripley—Tyler, G. P., Jr. (C.)
Scott Town — Mayberry, I. W. (C.)
Tiffin—Chamberlin, W. K. (C.)
Toledo—Chapman, G. L. (C.)
Maxwell, W. F. (C.)
Steinfeid, A. L. (C.)
Van Wert—Bartholomew, A. C. (C.)
Warren — Knappenberger, M. T. (C.)
Wauseon—Campbell, C. S. (C.)
Youngstown—Hauser, C. D. (C.)

OKLAHOMA

Avant—Clark, I. F. (C.)
Bigheart—Colley, K. L. (C.)
Broken Arrow—Myers, F. C. (C.)
Carmen—Dersch, W. H. (L.)
Chickasha—Emanuel, L. E. (M.)
Cooperton—Siberts, P. R. (C.)
Henryetta—Riley, J. L. (C.)
Oklahoma City—Mraz, J. Z. (C.)
Reed, H. (C.)
Wells, W. W. (C.)
Pawhuska—Jones, F. F. (L.)
Sallisaw—Jones, S. B. (C.)
Wirt—Davis, P. R. (L.)

OREGON

La Grande — Underwood, H. L. (C.)
Long Creek—Newmyer, P. L. (C.)
Orenco—Dinsmore, I. B. (C.)
Portland—Palmer, D. L. (C.)
Salem—Garnjobst, J. H. (C.)

PENNSYLVANIA

Allegany—Colcord, A. J. (M.)
Altoona—Taylor, J. S. (C.)
Arnot—Ditchburn, D. T. (L.)
Bellevue—Henry, E. B. (L.)
Bradenville—Sillamon, J. W. (C.)
Bryn Mawr—Scarlett, H. W. (L.)
Burgettstown—McKee, G. L. (C.)
Chambersburg—Asper, G. P. (L.)
Chester—Cross, G. H. (C.)
Parker, J. R. (L.)
Claridge—Stockberger, H. J. (C.)
Coatesville—Francis, W. G. (C.)
Kingsbury, O. J. (C.)
Delaware Water Gap — Stearns, J. H. (L. C.)
Doylestown—Fox, C. D. (L.)
Musgrave, P. (C.)
Dunbar—Dowds, S. C. (L.)
Erdenheim—Sheeham, W. C. (C.)
Franklin—Zerbe, J. I. (C.)
Freeland—Redelin, A. N. (L.)
Johnstown—Sagerson, R. J. (L.)
Kittaming—McClister, E. H. (L.)
Mapleton Depot—Simpson, F. P. (M.)
Monongahela—Wall, P. W. (C.)
Mont Alto—Sloane, M. T. (C.)
New Castle — Blackwood, J. M. (M.)
Steen, W. L. (C.)
New Kensington — Alter, J. G. (C.)
Wolff, R. A. (L.)
Philadelphia—Baron, A. I. (L.)
Bates, H. L. (L.)
Bowne, C. J. (L.)
Fetterman, W. B. (C.)
Herbert, J. F., Jr. (L.)
O'Brien, J. P. (C.)
Schnabel, T. G. (M.)
Wittman, P. C. (L.)
Wurster, L. E. (L.)
Pittsburgh—Alexander, J. H. (C.)
Hartung, F. A. (L. C.)
Hughes, W. P. (C.)
Metzger, I. D. (C.)
Mitchell, J. W. (L.)
Stifel, R. E. (C.)
Watson, W. S. (C.)
Pittston—O'Malley, F. C. (L.)
Rohrerstown—Denlinger, M. M. (C.)
Royersford—Melvin, A. M. (C.)
Sharpsburg—Cramer, G. E. (L.)
Southwest Post Office — Walker, D. A. (C.)
Swoyersville—Lavin, J. L. (C.)
Waltersburg—Carothers, J. R. (L.)
West Philadelphia — Steinhilber, E. A. (L.)
York—Throne, J. E. (L.)

RHODE ISLAND

Providence—Anderson, A. F. (L.)
Caldarone, A. A. (C.)
Ferguson, J. B. (M.)
Giovanni, T. G. (C.)
McCabe, J. E. (L.)

SOUTH CAROLINA

Charleston—Revenel, J. J. (L.)
Greenville—Brown, A. E. (L.)
Ninety-Six—Fouche, J. S. (C.)
Simpsonville—Smith, M. C. (C.)
Summerville — Graham, W. F. (M.)

SOUTH DAKOTA

Burke—Quinn, R. J. (L.)
Garretson—Reagan, R. (C.)
Sioux Falls—Stevens, G. A. (M.)
Watertown—Haraldson, O. (L.)

TENNESSEE

Bolivar—Sain, W. C. (C.)
Columbia—Faucett, P. H. (C.)
Jasper—Price, J. A. (C.)
Johnson City—Cass, H. M. (C.)
Memphis—Wilhelm, G. T. (L.)
Nashville—Jones, A. B. (L.)

TEXAS

Arlington—Collins, J. D. (L.)
Canyon—Griffin, S. R. (C.)
Corsicana—Miller, D. (C.)
Dallas—Gambrell, J. H. (M.)
El Paso—Wilson, R. A. (C.)
Fall City—Pawelek, I. L. (C.)
Fort Worth—Chilton, W. E. (C.)
Galveston—Jones, J. S. (C.)
Raney, D. H. (C.)
Greenville—Handley, J. J. (C.)
Honey Grove—Gain, O. O. (C.)
Houston—Aves, C. M. (L. C.)
Taft—Devendorf, L. E. (C.)
Troy—Crawford, J. L. (C.)
Wichita Falls—Kiel, O. B. (C.)

UTAH

Murray—Spangler, H. B. (L.)
Price—Chamberlain, E. F. (C.)
Salt Lake City — Evans, J. O. (C.)
Sunnyside—Cook, J. O. (C.)

VERMONT

Barre—Wark, J. A. (L.)
Derby—Aldrich, F. N. (C.)
Glover—Buck, P. E. (L.)
Orwell—Rowe, L. B. (L.)
Rutland—Graham, H. L. (C.)
Saxtons River — Bowen, W. D. (C.)

VIRGINIA

Blackstone—Hooks, A. (L.)
Crabbottom—Stover, J. F. (C.)
Flatridge—Shuler, J. E. (L.)
Fordwick—Hankins, J. L. (L.)
Hampton—Hope, J. W. (M.)
Howe, H. D. (L.)
Sinclair, M. W. (C.)
Hopewell—Elder, J. N. (L.)
New Glasgow — Tucker, W. S. (L.)
Newport News — Caudill, W. C. (C.)
Kagey, T. J. (C.)
Norfolk—Wilcox, C. (L.)
Onancock—Robertson, J. W. (L.)
Portsmouth—Roper, L. J. (M.)
Richmond—Hawkins, H. T. (M.)
Hutcheson, J. M. (M.)
Simmons, W. D. (C.)
Sycle, M. C. (C.)
Tyler, D. G. (C.)
Roanoke—Divers, D. S. (L.)
Taylors Store—Haynes, L. C. S. (C.)
Temperanceville — Nevitte, R. R. (L.)

WASHINGTON

Seattle—Edwards, O. M. (C.)
Fullerton, L. A. (L.)
Smith, E. H. (C.)
Tacoma—Jonez, H. D. (L.)
Smeall, J. S. (C.)

WEST VIRGINIA

Beverly—Harper, W. G. (C.)
Charleston—Cannaday, J. E. (M.)
Gamoca—Grisinger, G. F. (C.)
Huntington—Lyons, J. W. (C.)
Kingston—Willis, C. G. (C.)
Pemberton—Covey, W. C. (C.)
Petersburg—Grove, J. B. (L.)
Sherrard—Ferguson, J. H. (C.)
Staley, E. B. (L.)
Sterling—Eltinge, R. L. (M.)
Weirton—Ciemmer, C. A. (C.)

WISCONSIN

Black Creek—Walch, F. C. (L.)
Independence—Kulig, A. H. (C.)
Madison—Nelson, N. O. (M.)
Milwaukee—Bundy, H. E. (L.)
Salinko, S. (C.)
Wolters, H. F. (C.)
South Germantown—Dehmel, R. W. A. (C.)
Spring Green—Nee, F. (L.)
Stevens Point — Shippy, V. J. (C.)
Sturgeon Bay—Huff, F. C. (M.)

WYOMING

Casper—O'Donnell, J. F. (C.)

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CALIFORNIA

Los Angeles—Horton, J. C.
Stockton—Ratchford, I. N.

DISTRICT OF COLUMBIA

Washington—Legge, K. D.

GEORGIA

Quitman—Smith, L. A.

ILLINOIS

Chicago—Dooley, H. J.
Naperville—Petterson, H. C.

INDIANA

Indianapolis—Segar, L. H.

KANSAS

Garfield—Wolcott, C. C.

MASSACHUSETTS

Boston—Haigh, G. W.
Sleeper, F. W.
Chelsea—McPhail, J. G.
Reaves, R. G.

MISSOURI

Kansas City—Walker, J. M.

NEBRASKA

Omaha—Levey, P.

NEW JERSEY

East Orange—Nichols, J. N.

NEW YORK

Beacon—Polk, G. T.
Brooklyn—De Yoanna, S. A.
Schilling, E. R.
Wildman, A.
College Point—Williams, R. V.
Niagara Falls—Walker, O. F.

NORTH CAROLINA

Fayetteville—Gainey, J. W.
Monroe—Stewart, H. D. L.

PENNSYLVANIA

Philadelphia—Dean, A. C.
Kelly, T. C.
Stork, E. G.
Toland, J. J., Jr.

TEXAS

Houston—Kirkham, H. L. D.

VIRGINIA

Petersburg—Brunet, W. M.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Wing for Clinic.—The Memorial Laboratory and Clinic for the study and treatment of nephritis, gout and diabetes, founded by the late Dr. Nathaniel Bowditch Potter of New York City, is about to occupy a new wing of the Santa Barbara Hospital, which will be utilized as a complete metabolism unit.

Dr. A. E. Taylor to Deliver Lane Lecture.—The Lane Medical Lectures, which are held biennially at the Stanford University Medical School, will this year be given by Dr. Alonzo Engelbert Taylor, professor of physiologic chemistry at the University of Pennsylvania. Dr. Taylor has been representative secretary of agriculture on the War Trade Board for the past two years, and his lectures will deal with the results of his nutritional and medical survey of European food conditions. The exact date has not been definitely decided on, but will be about Dec. 12, 1919.

ILLINOIS

Ricketts Prize Awarded.—The Ricketts prize of $250, given by the University of Chicago each year to its students for the best research work in bacteriology, was divided between E. B. Fink and F. W. Mulson, both doctors of philosophy.

Poliomyelitis.—Infantile paralysis is said to have appeared in Putnam, Bureau and LaSalle Counties, where several cases have been reported. Dr. Charles E. Crawford has been sent by the state department of health to take charge of the situation.

Cleminson Restored to Practice.—Dr. Haldane Cleminson, Chicago, who recently was paroled from the state penitentiary, Joliet, was reinstated as a practitioner of medicine by the State Department of Registration and Education at its meeting, July 25.

Charge Dismissed.—A charge of practicing medicine without a license, preferred against Chosta Chacomas, Chicago, by Inspector Zuran of the State Department of Registration and Education, was dismissed by Judge Jarecki, July 22, on payment of court costs.

Sanatorium to Open.—The McLean County Tuberculosis Sanatorium will be formally opened, August 17. The principal address will be delivered by Dr. George T. Palmer of the state department of health, and patients will be received in the institution on the following day.

Lecture in Graduate School.—The eighth lecture of the graduate summer quarter in medical science of the University of Illinois was delivered, July 30, by Eben J. Carey, D.Sc., assistant professor of anatomy in the Creighton University Medical School, Omaha, on "The Biomechanics of Primary Bone and Muscle Origin."

Personal.—Dr. Samuel J. Walker, Chicago, who has been for about ten months in Greece and Macedonia in the service of the American Red Cross, returned home, July 24.—— Albert H. Roler, Lieut.-Col., M. C., U. S. Army, Evanston, who has been in charge of a hospital train in France, was discharged, July 10.——Dr. Jacob M. Furstman has assumed his duties as health director of Springfield.

Hospital Association to Meet.—A general meeting of the Illinois Hospital Association will be held at the Leland Hotel, Springfield, at 10 a. m. Monday, August 4, under the presidency of Dr. M. L. Harris, Chicago. The object of the meeting is to discuss and take action on numerous matters of vital importance to hospitals in this state, with especial consideration of the needs of the smaller hospitals.

INDIANA

Physician Indicted.—Dr. Frederick W. Krueger, Richmond, was indicted on a charge of manslaughter, following an investigation of his throwing a deformed infant, while still alive, on a city dump two weeks ago. Dr. Krueger said he believed the child was a monstrosity and would have died anyway. His statement to the effect that when he was health officer he had advised other physicians to dispose of deformed children in this manner, prompted an investigation by the grand jury to ascertain if the practice was a common thing among Wayne County physicians. Fifteen physicians appeared before the grand jury. Investigation showed that only one such offense has ever been committed in said county, and this was investigated and an indictment returned. When Dr. Krueger was examining physician of a selective service board, he was forced to resign under pressure of public opinion following alleged pro-German utterances.

Sanatorium Report.—From Sept. 1, 1917, to Dec. 31, 1918, 274 patients were admitted to Sunnyside, the Marion County Tuberculosis Sanatorium at Oaklandon. At the time this report was made, 202 of the patients had been discharged. Statistics show that ninety of the victims were between 20 and 30 years old; fifty-seven were between 30 and 40 years, and thirty-eight were between 11 and 20 years. Housewives and domestics formed the largest class affected, sixty-two of them being admitted. Skilled and unskilled workmen fell victims alike, forty-six of each being patients. Fifty-one schoolchildren were given treatment.——The Marion County Tuberculosis Association has announced the appointment of a committee, which, in its campaign against disease, will have as its goal the erection of a tuberculosis hospital for receiving advanced cases of the disease. An estimate places the total of tuberculous persons in Marion County between 6,000 and 7,000. For the 300 advanced cases there are now available only twenty-five beds at the Flower Mission. No place is available in the county for the care of the colored patients in the advanced stages of the disease.

KANSAS

Will Erect Building for Medical School.—The building for the Kansas University Medical School for which $200,000 was appropriated by the recent legislature, will be erected provided the city of Rosedale furnishes the additional ground needed, which is valued at $60,000.

New Officers.—At a meeting of the Cloud County Medical Association, held in Concordia, July 8, Dr. William B. Newton, Glasco, was elected president; Dr. Frank De Vilbiss, Clyde, vice president; Dr. Leo E. Haughey, Concordia, secretary, and Dr. William F. Sawhill, Concordia, treasurer.

Personal.—Dr. Florence B. Sherbon, Lawrence, has succeeded Dr. Lydia A. DeVilbiss, Topeka, resigned, as head of the child hygiene division of the state health department. ——Dr. Charles F. Howe, Atchison, is reported to be critically ill.——Dr. Clarence R. Hepler, health officer of Riley County, has been appointed city health officer of Manhattan. ——Dr. George L. A. Hamilton, Kansas City, has volunteered to work for the Red Cross, and sailed for Vladivostok, July 5.——Dr. Orton S. Hubbard, Parsons, superintendent of the State Hospital for Epileptics, has been appointed a member of a commission of forty to make investigations in mental hygiene among the children of the state.——Dr. Harry P. Mere has been reappointed city physician of Abilene.

LOUISIANA

Quarantine Stations for New Orleans.—A measure has been introduced by Congressman O'Connor appropriating $750,000 for the erection and equipment of a quarantine station at New Orleans.

State Clinic Transferred.—The Louisiana Anti-Tuberculosis League has formally transferred its physical property, consisting of a clinic on Tulane Avenue and Camp Hygeia in St. Tammany Parish, to the Orleans Parish Anti-Tuberculosis League.

Personal.—Dr. W. T. Browne has been appointed district medical officer for the Sixth District Federal Board for Vocational Education which includes the states of Alabama, Mississippi and Louisiana, and Dr. A. W. West has been appointed assistant district medical officer.

Welcome to Service Men.—The Orleans Parish Society, July 8, entertained men who had seen service in the Army and Navy during the war at a welcome home stag held in the Grunewald Hotel. More than 100 physicians were guests of the society and Dr. Paul J. Gelpi, New Orleans, was chairman of the committee of arrangements.

Health Board Loses Test Case.—The Louisiana State Board of Health was unsuccessful in its first attempt to confiscate an alleged illegal shipment of a habit-forming drug into Louisiana because the act is badly framed. Although its purpose is mainly penal, no penalty maximum and minimum is provided. This decision dissolved a writ of sequestration issued against a quantity of morphin said to have been shipped by a drug company of St. Louis to a pharmacist in New Orleans.

Hospitals to Be Erected.—Plans for the John Dibert Tuberculosis Hospital, New Orleans, were approved by the board of trustees, July 5. The hospital will be located at Carrollton and Tulane Avenues, on property purchased by the city. The building will be of brick, three stories in height and will accommodate 162 patients. The hospital has been made possible through the generosity of Mrs. John Dibert.——It has been decided by the board of administration of the Charity Hospital, New Orleans, to erect an electric power house for the institution at the cost of about $90,000. ——The city board of Brockhaven has agreed to provide $25,000 in bonds for the establishment of a Methodist hospital in that city on a site donated by Mr. S. E. Morton.—— Drs. Dave B. Davis, Edward G. Sewell, A. Marshall Haas and Edgar S. Matthews, Bunkie, have announced their intention of erecting and conducting a sanatorium capable of caring for the needs of the surrounding country.——The third branch of the New Orleans Lying-In Hospital was opened, June 15. It is located in Ursuline Street.

MARYLAND

Personal.—Dr. Henry A. Naylor of Pikesville, who recently returned to his home after serving with the Medical Corps, U. S. Army, has been appointed sanitary officer for the third district of Baltimore County, a position which he held before entering the service.

Typhus Fever Reported.—The first case of typhus fever to be reported to the health department in several years was brought to the attention of Health Commissioner John D. Blake, Baltimore, and the patient, a woman, 50 years of age was immediately sent to quarantine. In an investigation to determine the cause of typhus fever, Dr. C. Hampson Jones, Baltimore, chief of the state bureau of communicable diseases, requested the assistance of the U. S. Public Health Service and Surg. Arthur M. Stimson, with one of his laboratory assistants, came to Baltimore and took blood cul-

tures of the patient, while Surg. Joseph Goldberger investigated the case and confirmed the diagnosis.

Nurse Shortage Grave.—There is a serious shortage of nurses in Baltimore. Hospitals are beginning to feel the pinching effects of a lack of enthusiasm on the part of young women for a profession that always has been held as the highest a woman could enter. One of the direct and most serious effects of the situation is that no attempts at expansion can be made by the hospitals, because no nursing forces are available. More space, more buildings and more beds are a necessity in Baltimore at this time because the number of patients seeking admission to the hospitals is greater than it has been for many years. Virtually all the hospitals are crowded to capacity, and the patients are being turned away. It is estimated that 150 trained nurses could be placed in hospital positions immediately. It is hoped that the return to normal civilian life of hundreds of Baltimore young women who have been engaged in war work may go far toward relieving the present shortage of nurses.

Typhoid Fever in Baltimore Annex.—For the first six months of 1919, the new annex of Baltimore city showed a big lead on the old city in the morbidity rate from typhoid fever, according to a statement prepared by Dr. William T. Howard, assistant commissioner of health, for the purpose of showing the necessity for an adequate supply of filtered water in the new territory. Many small communities outside the original twenty-four wards get their water from wells and the health department has closed several, because of pollution. The morbidity per hundred thousand population for the first six months of 1919 for the old twenty-four wards was at the rate of 21.49 per annum, in comparison with 27.01 for 1918, while in the annex for the first six months of 1919 the typhoid morbidity was at the rate of 102.5 per annum. Therefore, the morbidity rate for typhoid fever for the first six months of 1919 was nearly six times greater in the annex than in the original twenty-four wards of the city. On account of the very high incidence of typhoid fever in the annex territory, the typhoid fever rate for the whole of Baltimore for 1919 promises to show a decided increase over 1918, the morbidity rate being already for the six months nearly one third greater than the rate in 1918.

MISSOURI

Teaching Center for Nurses.—The St. Louis Chapter of the American Red Cross has completed arrangements for conducting a teaching center for public health nurses in St. Louis. An area in the congested district in the southern portion of the city has been mapped out and a large building on South Broadway, formerly occuppied by a saloon, has been rented for the clinic center. Miss Welsh, formerly instructor in public health nursing at the Henry Street Center in New York, has been engaged and placed in charge of the practical work. It is the purpose of this teaching center to supply nurses trained in public health work for community service in the southwestern states. Information regarding the courses can be obtained through the Southwestern Division of the American Red Cross, or at the St. Louis Chapter, Frisco Building.

Former Medical Officers Organize.—July 9, an organization composed of ex-medical officers, U. S. Army, residing in southwest Missouri, was perfected at Springfield. Dr. William A. Delzell, Springfield, was temporary chairman. About forty men were present from the following counties: Vernon, Barton, Jasper, Newton, McDonald, Barry, Lawrence-Stone, Dade, Cedar, St. Clair, Hickory, Polk, Christian, Taney, Webster, Dallas, Camden, Laclede, Wright, Howell, Oregon, Texas, Pulaski and Greene. The temporary committee on organization, composed of Drs. James E. Dewey, J. LeRoy Atherton and Otto C. Horst, all of Springfield, was made a permanent committee to complete a constitution to be submitted at the next annual meeting. It was voted that the first meeting be held at Joplin, November 11, the anniversary of the signing of the armistice. The following officers were elected: president, Dr. William A. Delzell, Springfield; vice president, Dr. Louis M. Edens, Cabool; secretary, Dr. Horace A. Lowe, Springfield; treasurer, Dr. James H. Fulbright, Springfield; corresponding-secretary for Jasper County, Dr. Robert M. James, Joplin.

NEBRASKA

Microscope Stolen.—Dr. Sydney S. Wilson, Nebraska City, announces that a Bausch & Lomb microscope, valued at $125, has been stolen from his office. He also states that a few days prior to the stealing of his microscope, a microscope was stolen from a physician's office in Pawnee City.

Medical Arts Building.—The Medical Arts Building, to be occupied by physicians' offices, which is about to be erected in Omaha, is being constructed by two department stores. Physicians are being solicited to buy stock in the undertaking. The sixteenth floor of the building will be occupied by the Omaha-Douglas County Medical Society and the seventeenth floor will contain rest and lounging and dining rooms.

Personal.—Dr. Benjamin F. Williams, Lincoln, received his discharge from the United States service, June 30, and immediately assumed his position as a member of the state board as commissioner of state institutions.——Dr. Arthur C. Stokes, Omaha, who organized Base Hospital No. 49, and who recently returned from overseas, has been cited by General Pershing for meritorious service.——Dr. Varro M. Boal, after more than thirty-five years of practice at Auburn, has disposed of his practice and will move to California.——Dr. Roy A. Dodge, Omaha, has been elected grand chancellor of the Knights of Pythias.

Hospital Notes.—A campaign for a general hospital for Nebraska City and Otoe County has been inaugurated.——Plans for the Good Samaritan Hospital at Kearney have been approved. The building is to cost about $125,000.——Plans are being prepared for the new Lord Lister Hospital, Omaha, to be erected at Twenty-Sixth and Dewey Streets by Dr. Edwin C. Henry. The building will be six stories and a basement in height, will cost more than a quarter of a million dollars and will have capacity for 140 patients.——The Order of the Eastern Star of Nebraska has purchased a 16-acre tract of land north of Fremont on which a hospital will be erected at a cost of $150,000, to be used in connection with the Masonic Orphanage.——Three registered nurses have closed a deal for the purchase of the G. O. Burns residence at Columbus, which they will convert into the Columbus General Hospital.——A site has been purchased in Ainsworth for the Brown County Hospital.

NEW JERSEY

New Health Officers Organized.—Organization of the Health Officers' Association of Essex County was effected at Newark, July 7.——Dr. Charles V. Craster, Newark, was elected president and William B. Palmer, milk inspector of the Oranges, secretary.

Personal.—Dr. Elfie R. Graff, Somerville, who has been assistant physician at Vassar College for several years, has sailed for Turkey where she will be assigned to work among Armenian women.——Dr. Charles B. Sitgreaves, Pemberton, has resigned as medical superintendent of the Burlington County Tuberculosis Sanitarium, New Lisbon.

New Wing for Hospital.—With simple ceremonies the new wing of the Monmouth Memorial Hospital, Long Branch, erected by Mr. and Mrs. Charles A. Wimpfheimer, New York City, in memory of their son, Jacques Wimpfheimer, who died in the military service a year ago, was dedicated, July 19. The new building has cost $150,000 and was presented to the board of governors by former Ambassador Abraham I. Elkus and accepted for the hospital by its president, Mrs. William B. Harper. The new wing doubles the capacity of the hospital.

NEW YORK

Smallpox Follows Small Circus.—A communication from the Pennsylvania to the New York State Department of Health, it is said, reports that cases of smallpox have appeared in the wake of the Spark's circus which has been traveling through Virginia, Maryland and Pennsylvania, and was last heard of in Ohio.

Public Health Association Organized.—At a reunion of the health officers who have taken the course for health officers at Syracuse University under the direction of Sanitary Supervisor Frederick W. Sears, M.D., the Central New York Public Health Association was organized with an initial charter membership of sixty-two.

Personal.—Dr. Carl R. Comstock, Saratoga Springs, who has just returned after two years' service in the Army, has been appointed instructor in diseases of the heart in the Albany Medical College.——Fred M. Meader, Major, M. C., U. S. Army, Albany, director of the division of communicable diseases, state board of health, has returned from France and has resumed his position.

Tuberculosis Clinics in Albany.—The state department of health has inaugurated a series of eight tuberculosis clinics in Albany. The first was held, July 29, and the last will be given, August 8. These clinics are open to individuals

not under the care of a physician or who are referred by a family physician and who have had influenza followed by a persistent cough with other significant symptoms.

More Public Health Nurses to Be Employed.—The Essex County Chapter of the American Red Cross has voted to employ a public health nurse.——Wheatland, Livingston County, has appointed a community nurse.——Appropriations for public health nurses have also been made at Fort Plain and St. Johnsville.——Mount Morris is to have the services of a community nurse and Madison County has recently appointed a tuberculosis nurse.

State to Care for Tuberculous Men.—According to an announcement recently made by the tuberculosis committee of the State Charities Aid Association, of the men called to military service in New York state, outside of the city of New York, 3,411 were rejected by the local draft boards because of tuberculosis. The names, but not the addresses of these men, have just become available and steps are being taken by the association, in conjunction with the state department of health, for placing them under the care of local health authorities and tuberculosis societies.

Cooperation of Volunteer Health Organizations Requested.—In order to secure the maximum cooperation between existing health agencies, the state health department is desirous of securing an up-to-date list of all organizations working for public health in any of its various divisions. Reports and regular publication of these organizations are solicited and in return the state department of health will be glad to send such publications as may be requested. It is particularly desired that the state health department should be kept informed of new exhibit material, posters, panels, lantern slides, films, etc., in order that exhibit work may be coordinated.

New York City

Doctors and Nurses Sail for Serbia.—A party of twenty doctors and nurses sent by the Serbian Relief Committee of America sailed, July 26, on the *President Wilson* for Patras and thence to Saloniki. The party is under the direction of Dr. Barton W. Brush, U. S. Navy, Flushing, N. Y.

Jacobi Memorial Hospital.—A campaign committee has made plans for raising funds for the erection of an Abraham Jacobi Memorial Hospital for the Washington Heights section. This locality has been chosen because of its lack of hospital facilities. The active campaign will not be begun until November. Dr. S. Robert Schultz is executive director of the campaign and has issued a call for volunteer workers. A resolution will be introduced in the board of aldermen at the first fall meeting, proclaiming Heights Hospital Week from November 15 to 22.

Foundation for Destitute Children.—The will of Mrs. Rosa E. Spang makes a bequest estimated at more than $1,000,000 for the relief of the poverty and distress of children and babes who are in want through abandonment or the death of their parents. Former Atty.-Gen. George W. Wickersham, Col. Michael Friedsam and Dr. Henry Dwight Chapin are named as directors and executors of the fund. The will provides that the foundation shall be known as the Rosa Spang Foundation and that its chief work shall be to select children sent to orphanages and homes and make provision for their education and instruction.

Asks War Hospital to Keep Personnel.—A report on the war work of Base Hospital No. 8, prepared for the trustees of the institution by Dr. Charles Gordon Heyd, contains a communication from Surgeon-General Ireland commending the work of the unit and asking that the personnel be kept intact so as to be prepared for work in case of future emergencies. The hospital was opened in the village of Savenay, France, in August, 1917, with 127 beds. At the time of the signing of the armistice the bed capacity was 18,000. The commanding officer was Lieut.-Col. Joseph F. Siler, the director of surgery, Major Samuel Lloyd and the director of medicine, Major R. Julian Estill.

Personal.—Dr. Nelson W. Janney, formerly chief of the medical services of Base Hospital No. 99, American Expeditionary Forces, has resigned his professorship in the New York Post-Graduate Hospital to succeed the late Dr. Nathaniel Bowditch Potter in the directorship of the Memorial Laboratory and Clinic for the Study and treatment of Nephritis, Gout and Diabetes, Santa Barbara, Calif.——Mr. Howard Fonda has returned to his position in the department of bacteriology in the Long Island College Hospital, Brooklyn, after eighteen months' service in France.——Dr. Caldin Brewster Coulter has begun his duties as assistant professor of pathology in the Hoagland Laboratories.——Dr. Carl H. Laws, Brooklyn, has been elected president of the Clinical Society of the Long Island College Hospital.——Phillip Moen Stimson, Capt., M. C., U. S. Army, who was severely wounded by shrapnel near Ypres, and for nearly a year has been adjutant of American Red Cross Military Hospital No. 2, Paris, has received a citation from General Pershing for "exceptionally meritorious and conspicuous service."——Dr. Charles Theodore Graham-Rogers, who served during the war as a line officer with the 27th Division, has been appointed captain, M. C., N. Y. N. G., and is attached to the 47th Infantry.

Economic Conditions Create Health Problems.—The bureau of preventable diseases of the New York City Health Department, under the direction of Dr. Louis I. Harris, has just made public the results of a pioneer investigation into some of the medical aspects of the high cost of living. An investigation of the living conditions of 2,084 families visited by public health nurses, primarily for the purpose of supervising cases of tuberculosis, diphtheria and scarlet fever, forms the basis of this report. The families consisted of 4,991 adults and 5,612 children, an average of 5.08 persons and 2.69 children per family. It is believed that these families represent a fairly typical cross-section of conditions in New York City. Of these families 51 per cent. had a total income not exceeding $900 a year and a total of 72 per cent. had an income not exceeding $1,200 a year. A study of the increased cost of living on the normal dietary of the families showed that in 37 per cent. of these families meat was entirely eliminated; in a slightly larger percentage eggs were entirely eliminated. In 293 families the use of bottled milk was given up; in 71 per cent. of the families the amount of milk consumed by the children was considerably reduced. In 370 families the use of butter was eliminated and sugar was omitted from the dietary of children in seventy-one of these families. In these families the effect of these conditions of daily life on sickness and on the period of convalescence was studied. It was found that in 287 cases out of a total of 2,183 cases of illness, or in a little over 13 per cent., recovery was definitely retarded because of the increased cost of the essentials of life.

Health Department Has Legal Right to Treat Drug Addiction.—The health commissioner has received an opinion from Corporation Counsel William P. Burr supporting Dr. Royal S. Copeland's position that drug addiction should be considered a disease to be dealt with by the health department and not a criminal condition calling for punishment in penal institutions. He holds that there is no legal bar to prevent the use of the city's farm at Warwick, N. Y., as a colony for the treatment of drug addiction. Corporation Counsel Burr's opinion holds that the facts disclosed by the Mayor's Public Welfare Committee, which was created by him in the interest of public health, morals and safety to investigate the evil of drug addiction in this city, are most alarming. The records of recent trials in the federal courts in this district show the close connection between the dishonest druggists and physicians, it having been ascertained that eight physicians recently arrested for illegally practicing in this traffic between them wrote more than 1,500,000 narcotic drug prescriptions in less than one year's time. Dr. Copeland declares that he has doled out 167,000 grains of morphin and heroin to addicts within seven days. Dr. Walter R. Herrick, commissioner of the state department of narcotic drug control, says that there are three things that must be done before the disease of drug addiction can be eliminated, namely, drug smuggling and peddling must be stopped, the manufacture and importation of heroin must be prohibited, and there must be a national registration of drug addicts. The corporation counsel also expresses the opinion that there is no legal reason why the health department is not free to accept the offer of the Rockefeller War Demonstration Hospital.

OHIO

Night Clinics Inaugurated.—Night clinics have been established in Cincinnati at all public health stations, every Friday night from 7 to 10 p. m. At the Sands School, Cincinnati, this clinic is being held every Thursday from 7 to 10.

Personal.—Dr. Gertrude E. Sturges, Mansfield, who has been in service in Italy, arrived in New York, July 5.——Frank W. Hendley, Major, M. C., U. S. Army, Cincinnati, who has just returned from Army service, has been added to the staff of the public health stations of the city.

Typhoid Fever.—Eight of the five larger cities of Ohio had a typhoid death rate last year of less than 10 to 100,000 of

population but for the state at large the 1918 rate was nearly 15 deaths for 100,000 population. The reports for 1919, thus far, indicate a typhoid prevalence much below normal.

Health Supervisors Appointed.—The state department of health has announced the appointment of the following district health supervisors: Dr. Carroll H. Skeen, Greenfield; Percey K. Holmes, Delaware; Walter S. Bennett, Cardington; Jackson A. Frank, Columbus; Charles R. Deeds, Fresno, and Henry E. Cock, Cincinnati. Two other appointments will be announced later. The first work of the supervisor will be to promote the reorganization of the local health administrative changes of the state in accordance with the Hughes Act.

Health Propaganda.—The state department of health has prepared an exhibit which it plans to install at eleven county fairs. The dates thus far arranged are: at Wellston, July 22 to 25; at Athens, August 19 to 22, and at Logan, September 24 to 27. The exhibit will be in service continuously until October 18. The care of babies, sex hygiene and venereal disease control are to be emphasized in displays, and the exhibit is accompanied by a lecturer and a nurse.——A venereal disease clinic has been opened at Ashtabula, which is the eighteenth Ohio city to be equipped with such clinical facilities. The clinic will be maintained jointly by the city, state and federal governments.

PENNSYLVANIA

Mosquito Bill Vetoed.—Governor Sproul has vetoed the bill providing a method of getting rid of mosquito breeding places, saying it would make a radical innovation in the assessment laws of the state.

State Appropriations.—The following shows the appropriations made by the last legislature to the state institutions, sanatoriums, hospitals and semistate institutions:

	Appropriated	Approved
State institutions	$13,409,073	$13,215,073
Semi-State institutions	2,005,560	2,005,560
Hospitals	6,343,300	6,227,900
Sanatoriums	2,939,595	2,939,595

New Lehigh Valley Officers.—At the annual meeting of the Lehigh Valley Medical Association held at the Delaware Watergap, July 24, the following officers were elected: president, Dr. Jacob A. Trexler, Lehighton; vice presidents, Drs. Samuel P. Mengel, Wilkes-Barre; Harry C. Fisler, Easton; Frederick A. Fetherolf, Allentown, and James M. Reese, Phillipsburg, N. J.; secretary, Dr. Alexander Armstrong, White Haven (reelected); assistant secretary, Dr. Roger P. Batchelor, Palmerton (reelected), and treasurer, Dr. David H. Keller, Bangor (reelected).

Special Training Bill Passed.—The Lanius bill, which provides for the handicapped children in the public schools, has been signed by Governor Sproul. The measure is an amendment to the school code, and was drawn by the Public Charities Association. Mental and medical clinics are provided to ascertain the children who are tuberculous and need open-air school treatment; children who because of defects in sight or hearing need special training, as well as the children who are incorrigible or who are retarded because of weak intellects. Dr. Thomas E. Finegan, state superintendent of public instruction, worked the general plan out. It is estimated that out of the 1,500,000 children now in the public schools, one tenth, or 150,000 would be reportable, because of either physical or mental defects. Out of this 150,000 only 15,000 could be classed as feebleminded, or 1 per cent. of the entire school population.

Philadelphia

Indict Licenseless Physicians.—William J. Looker and Phillip S. Dailey were indicted, July 24, charged with practicing medicine without a license.

Health Director Warns of Epidemic.—Dr. Wilmer Krusen, director of Public Health and Charities, has issued a warning to the public to keep roofs intact and keep water out of cellars in order to prevent a wave of sickness following nine days of rain.

Expect Hospital Merger.—The Women's Medical College and Hospital and the Woman's Hospital of Philadelphia will soon be merged. With the opening of the fall term at the college, definite steps to unite the interest of the college and hospital are expected to be taken.

Prohibition Hits Hospitals.—William D. McAllister, superintendent of "Blockley," states that admissions from July 1 to 15, were one half as large as for the same period last year. Superintendent McAllister said that the number of inmates of the women's almshouse department at Blockley and in the men's department at Holmesburg is the lowest it has been for some time. There are 811 men and 631 women. Rum and social disease are stated to be responsible for 70 per cent. of the admissions to the almshouses.

Infant Mortality Drops.—Infant mortality in Philadelphia for the first six months of 1919 dropped 23.31 per thousand compared with the death rate of 1918, according to a statement issued by Director of Health and Charities Krusen. During the first six months of this year, 1,838 babies, under the age of 1 year, died, a mortality rate of 85.69 per thousand, compared with 2,338 death in 1918, a rate of 109.0, and 2,159 deaths in 1917, a rate of 100.65. The decrease is due to the work of the Division of Child Hygiene, and this division has mapped out an extensive campaign of child conservation.

Insanitary Soda.—Dr. Wilmer Krusen, director of public health and charities, has issued a statement on cleaning up the soda fountains. Dr. Krusen states that the most fertile source of disease and disease dissemination lies in the unclean drinking glass. Improperly cleansed glasses used at the soda fountain may be responsible for the spread of tuberculosis, typhoid, diphtheria, sore throat, infectious colds and diarrheal diseases. Ordinary rinsing does not clean the glass from a health standpoint. It requires boiling water with soap or a suitable disinfecting solution to make them safe for reuse. When this cannot be done it is better to use the individual cup which can be destroyed. Soda fountain dealers who use dangerous dyestuffs and artificial sweetening, it is declared, should be placed on trial before the public.

CANADA

Decrease in Smallpox.—There has been a marked decrease in smallpox cases in Halifax, N. S., during the past two weeks, and there are now only fifteen patients at the hospital. The paratyphoid epidemic has also died out.

Personal.—Dr. W. P. Eakins, Montreal, who has been overseas several years, has accepted an appointment as professor of therapeutics at Edinburgh University.——Dr. Harris C. Mersereau, Notre Dame de Grace, Quebec, has returned from overseas.

Limit Liquor Prescriptions.—The Medical Council of British Columbia has passed a resolution to the effect that the liquor prescriptions of practitioners shall not exceed 100 per month, and this resolution has been forwarded to the minister of education.

Military Medical Services.—At the annual meeting of the Canadian Medical Association in Quebec, in June, a special committee was appointed to deal with a resolution unanimously passed with regard to the Military Medical Services of Canada. The resolution was proposed by Dr. Herbert A. Bruce, Toronto, and seconded by Dr. George E. Armstrong, Montreal. It provides for the teaching, in the medical schools, of the medical history of the great war, the reorganization of the Canadian Army Medical Corps, so that full advantage may be taken of modern scientific knowledge of medicine; and that the rate of pay in the service may be advanced to that prevailing in the Royal Army Medical Corps.

University News.—The University of Toronto has authorized a new degree for those wishing to specialize in the different branches of medical research—B.Sc. (Med.)—Bachelor of Science in Medicine. It will be given to students who, on the completion of the first three years of the six years' course, obtain honor standing and proceed to one year in research work.——The University Hospital Supply Association of Toronto has held its last meeting. During the four years of war $121,107.25 was raised, and $117,007.21 disbursed. The grand total of surgical articles sent overseas numbered 1,808,257. The balance of $4,100 left in the treasury was divided between Pearson Hall for blind soldiers, Toronto, and the Orthopedic Hospital.

Hospital News.—The government of Ontario is not in a position to confirm recent rumors that the Ontario military hospital at Orpington, England, has been sold to English capitalists. If it is not sold, the full equipment will be brought back to Canada and used in the provincial institutions of Ontario.——The Provincial Hospital for the Insane in Toronto is rapidly being evacuated of patients, and they are daily being removed to the Whitby institution, which has been handed back to the government by the military authorities. There are yet about 1,000 patients in residence, and it will take two months to effect their removal.——Toronto is to have a brand new reception hospital. It will cost about

$84,000, and will have accommodations for sixty patients. It is understood that a site has been selected in the northwestern section of the city.——Dr. Elizabeth Kilpatrick, assistant physician at the Northampton State Hospital, Northampton, Mass., has been appointed an assistant physician in charge of the women's wards of the Nova Scotia Provincial Hospital.——The federal government has granted $62,500 to the St. John (N. B.) General Hospital. The sum goes to defraying the expenses in connection with sick mariners, and will provide for twenty-five beds on a basis of $2,500 each.

GENERAL

Physical Reconstruction Treatment.—July 1, 25,600 officers and enlisted men of the army were undergoing treatment in twenty hospitals equipped for physical reconstruction work. These patients will be obliged to remain under treatment from two to four months.

Tristate District Society Meeting.—The annual meeting of the Tristate District Medical Society will be held in Rockford, Ill., September 1 to 4. Elaborate plans are being made for the entertainment of the visitors by the Winnebago County Medical Society, of which Dr. John E. Tuite, Rockford, is president.

Reduction of Army Patients.—Between May 31 and June 21 the number of patients in the army hospitals decreased from 50,387 to 42,648 and on the latter date there were 21,261 vacant beds in the hospitals. During June, fifteen hospitals with a capacity of 12,959 beds were closed, and during July, seven hospitals were closed.

Personal.—By a vote of 9 to 7, July 25, the senate military committee ordered a favorable report on the appointment of Lieut.-Col. Robert E. Noble to the permanent rank of Brigadier-General, Medical Corps.——John H. C. Scudder, Major, M. C., U. S. Army, who went to Siberia in command of Field Hospital and Ambulance Company No. 4, was the first acting surgeon-general of the Philippine National Guard and organized the medical department in the Philippine Islands.

Bill for Retired Army Nurses.—The Senate Committee on Military Affairs has made a favorable report to the senate on Senate Bill 2496, introduced by Senator James W. Wadsworth, Jr., of New York, authorizing the retirement of members of the Army Nurse Corps who have had twenty years' active service. The bill provides that the nurses shall receive 75 per cent. of their active pay, exclusive of foreign service pay. The committee recommends passage and it seems to be assured that the measure will pass.

Motor Clinic.—An automobile truck known as the "Child's Welfare Special" has been put into the field by the Children's Bureau of the United States Department of Labor to test the usefulness of the automobile in carrying the message of better babies into the rural communities. The truck is completely fitted as a model baby clinic and has a government physician and nurses in charge to examine children and give the mothers advice concerning the care necessary to make and keep the babies well.

Army Roentgen-Ray Work.—The training of officers and enlisted men of the Medical Corps of the Army in roentgen-ray work will soon be concentrated at the Army Medical School, Washington, D. C., under the section of roentgenology of the Office of the Surgeon-General. Henry C. Pillsbury, Lieut.-Col., M. C., is to be appointed professor of roentgenology at the school. A class of eighteen began the three months' course, July 1, and on graduation these officers will be eligible for assignment to duty in the roentgen-ray department in any military hospital.

Appropriation by Congress for Investigation and Combatting Influenza.—Four measures appropriating funds and authorizing the United States Public Health Service to investigate and combat a recurrence of the influenza epidemic are now before congress. Senator Warren G. Harding of Ohio has introduced a joint resolution appropriating $5,000,000 for an investigation of influenza and pneumonia. His measure cites that the recent influenza epidemic caused 550,000 deaths in the United States. The Public Health Service and research institutions are authorized to make this investigation. A bill introduced in the House by Congressman Simeon D. Fess of Ohio, authorizes the Public Health Service and the medical departments of both the Army and the Navy to investigate and combat the disease and appropriates $1,500,000 for this purpose. Congressman William W. Larsen of Georgia and Congressman Black of Texas have introduced similar bills for making an investigation of influenza and allied subjects. The Larsen and Black measures carry an appropriation of $500,000 each. All four measures charge the United States Public Health Service with carrying out the provisions of the act, although cooperation with the army and navy medical departments is advised.

Infant Mortality Rates in the United States.—The New York Milk Commission has recently issued a report on the infant mortality rates of the different cities of the United States for the year 1918. This report shows that the infant death rate for New York City was 92 per thousand living births. Although the estimates show that the death rate for the country increased seven points last year, the milk commission believes these rates are remarkably low when all the elements conspiring against the baby are considered. The infant mortality rate for seventy-nine cities with populations under 50,000 was 97.2. The rate for thirty-eight cities of between 50,000 and 100,000 was 113.8, and that for forty-five cities of 100,000 population was 103.5. The average baby death rate for the registration area of the United States is 104. Twenty two of the cities of 100,000 are above this average, and twenty-two are below. The rates for a number of the larger cities are reported as follows:

Chicago, 104.3; Philadelphia, 126; Boston, 114.9; Baltimore, 147.8; Pittsburgh, 122.5; Buffalo, 121.5; Milwaukee, 108.2; Cincinnati, 104.1; Newark, N. J., 104.7; New Orleans, 123.3; Washington, D. C., 110.9; Jersey City, 118.7; Louisville, Ky., 117.3; Denver, 107.3; Syracuse, N. Y., 117.4; Birmingham, Ala., 133.5; Memphis, Tenn., 145; Scranton, Pa.; 144.3; Richmond, Va., 146.3; Fall River, 161.3; Lowell, Mass., 159.1; Albany N. Y., 107.4. Only three cities reported baby death rates below 50. These cities are all of the class below 50,000. Brookline, Mass., has the lowest rate, 35.4; Madison, Wis., is next with 38.1, and Pasadena, Calif., third, with 43.8.

FOREIGN

Physician Wounded by Maniac.—An inmate of the asylum for the insane at Alessandria recently severely wounded Dr. L. Gualino, the physician in charge. One of the wounds is in the thorax and the prognosis is grave. The same maniac ten years ago tried to kill another man, and in 1914 nearly strangled the physician in charge at that time, Professor Frigerio.

Belgian Conference to Discuss Professional Matters.—The sixteenth Congrès de médecine professionelle was held last week at Antwerp under the auspices of the Fédération médicale belge. The main topics up for discussion were contract medicine; dentistry and physicians; organization of cooperative purchasing and medical printing and medical cooperative work in general.

Raising Medical Fees in Paris.—The Syndicat des médecins de la Seine, the representative association of the medical profession in the Seine district for other than strictly scientific purposes, has issued a notice to the general public of Paris stating that henceforth medical fees are to be increased to just twice the fees current before the war. Professional calls demanded after 7 p. m. and on Sunday will be charged for at double rates, and when the physician is summoned between 9 p. m. and 7 a. m. the rate will be tripled.

Deaths in the Profession Abroad.—Dr. **L. Bonaventura** of Rome succumbed recently to typhus contracted in medical services to Austrian prisoners of war doing agricultural work.——The cable reports the death of **Emil Fischer,** professor of chemistry at the University of Berlin and chief of its Chemistry Institute, aged 67. He was given the Nobel prize in chemistry in 1902 for his research on sugars, synthesis of albumin, polypeptids, etc. He also received the Helmholtz medal in 1909, and the Franklin Institute of Philadelphia awarded him the Elliot Cresson gold medal in 1913.

The Paris Child Welfare Institution.—The Institut de puériculture de la Faculté de médecine de Paris was formally inaugurated, July 1, with much ceremony. The first million francs for it was offered by the American Red Cross and this was doubled by another million donated by French philanthropists. Professor Roger, dean of the Paris faculty, expressed the gratitude of the French and spoke in particular of the penny contributions of the children of America, their contribution to the work totaling 500,000 francs. He urged that a similar *Oeuvre du sou* be started in France. A society was organized at the same time, the Société de l'Institut de puériculture, and the constitution and by-laws adopted.

Italian Newspaper's Sanatorium.—The *Giornale d'Italia* opened a subscription list for a sanatorium for the children of soldiers. Large sums were collected, and the newspaper was tendered the use of a sanatorium for crippled children

that had been founded on a large scale as a memorial to the son of the Princess Chigi, killed early in the war. The sanatorium has extensive grounds, on a lake, near Ariccia, and was modeled on the most approved plans. The combination of the two enterprises has resulted in a model institution of the highest grade, it is said, with accommodations to date for 120 children. The issue of the *Italia Sanitaria* for June 25 is devoted almost entirely to an illustrated description of it.

Congress for Medical Radiology.—The second annual meeting of the Società Italiana di Radiologia Medica is to convene at Genoa, Oct. 20, 1919. There is to be an exhibition in connection open to exhibitors of the allied nations. The subjects appointed for discussion are the biophysical bases of radiotherapy, and the radiologic picture of pulmonary tuberculosis. The congress is to be open to physicians, biologists, physicists, designers and technicians interested in the scientific and practical development of medical radiology. The subscription fee is 10 lire ($2) for persons not members of the society. For information address the secretary of the congress, Dr. G. Pesci, Ospedale Pammatone, Genoa, Italy.

Red Cross Activities.—In a report of the Bureau of Hospital Administrations of the American Red Cross, prepared for the War Department, it is shown that during the war the Red Cross furnished more than 1,110,000 days of hospital care for the American soldiers, and admitted to its hospitals a total of 89,539 patients. At the cessation of hostilities, the organization had in operation twenty-two military hospitals with 14,326 beds. In addition to this, assistance of many kinds was extended by the bureau to 2,800 French hospitals. During the last nine months of 1918, the Red Cross delivered more than 64,000,000 dressings, pads, sponges and bandages, and nearly one and one-half million splints and accessories. During the influenza epidemic the work rooms of the Red Cross in Paris made and delivered more than 600,000 influenza masks to the American troops.

LATIN AMERICA

Drugstores in Cuba.—The last report of the Department of Sanidad y Beneficencia of Cuba shows that at the beginning of the year 1919 there were in Cuba 958 drug stores.

Physician Appointed Consul from Colombia at Baltimore.—The *Repertorio de Medicina y Cirugía* of Bogotá mentions that Dr. Daniel Molano has been appointed consul ad honorem for the Republic of Colombia in the city of Baltimore.

Personal.—Dr. M. Escudero Vargas, physician in charge of the hospital at Iquique, Chile, has been designated by the government of that country to make a study in the United States of matters relating to infant surgery and children's hospitals.

Death of Dr. Hernández.—It is reported from Caracas that Dr. José G. Hernández, one of the most prominent physicians of Venezuela, also a scientist of note, was killed there, June 30, in an automobile accident. A period of public mourning has been declared.

Influenza in Rio de Janeiro.—A recent report of the Department of Public Health of Rio de Janeiro shows that influenza caused a total of 12,720 deaths in that city during the year 1918. The epidemic reached its crest in October, when the deaths rose to 8,817 from 48 the previous month of September. In November the deaths amounted to 3,287, decreasing to 284 in December. The mortality was nearly equally divided among the sexes in the Brazilian native population, namely, 5,319 males and 5,329 females. Among the foreigners, the proportion was naturally heavier among the males who predominate in numbers. Next to influenza, tuberculosis caused most deaths during the year, namely, 4,909. During the year the estimated population of Rio de Janeiro decreased from 911,721 in January to 875,477 in December. The total number of deaths was 35,113, the mortality rising from an average of 1,700 during the first eight months of the year to an average of 6,524 for the last three months.

Blindness in Mexico.—The subject of blindness in Mexico has lately been attracting much attention in that country. Dr. José Joaquín Izquierdo has recently published a study of the prevalence of blindness and its distribution and causes. It seems that in the eighteenth century blindness was very rare in Mexico. According to the last censuses, in 1900 the proportion of blind was 95.2 per 100,000 and in 1910 of 78.2, the last figures being probably more correct. Blindness is proportionally more prevalent in the north of the country, this condition being less prevalent in the lower and warmer regions near the seashore. Judging from the records of the National School for Blind People, smallpox was the most frequent cause of blindness during the first years (1870-1879) of the foundation of the school. Ophthalmia neonatorum, which at the beginning caused 30 per cent. of the blindness, has been increasing gradually until in the period of 1910-1914 was responsible for 75.6 per cent. of all cases. The cases due to smallpox have also been increasing during the last eight years probably due to the neglect in the enforcement of vaccination. All the data available seem to indicate that trachoma is very rare in Mexico, contrary to the opinion prevailing abroad.

PARIS LETTER

PARIS, July 3, 1919.

The Smallpox Record in Paris from August, 1914, to June, 1919

At a recent meeting of the Academy of Medicine, Dr. R. Wurtz, hospital physician and university professor at the Paris School of Medicine, reported that there had recently been in Paris an epidemic of smallpox which had awakened some anxiety. There were, it seems, fifteen cases during the month of April, and twenty-two cases during May. This is all the more regrettable because, from the beginning of the war until March, 1918, the mixed assemblage of people in Paris had enjoyed almost absolute immunity. Thus, there were only six cases recorded in 1914; seven in 1915; four in 1916; six in 1917; fifty-five in 1918, and forty-seven during the first five months of 1919. During the war the various public services were untiring in their efforts to prevent a smallpox epidemic. The high degree of frequency of positive vaccinations has been noted; for example, 98 per cent. being successful in the case of an agglomeration of 3,000 employees.

The reappearance of smallpox is due, in part, to foreign importation from such countries as Morocco, Spain, Italy and Algeria; in part to the violation of sanitary regulations, particularly as regards crossing from North Africa to France, and in part to the obstinate refusal, on the part of the public, to be vaccinated. More than 60 per cent. of the hospitalized patients had refused revaccination since childhood.

An Appeal to Civilian Physicians

A circular which has been issued by the undersecretary of state for the medical department of the army, with reference to medicolegal questions in regard to claims for disability, makes the suggestion that the officers of the medical department shall, in case of need, call on civilian physicians for assistance. Appeals may be made to former medical experts of the special reeducation centers, the medical experts attached to the civil courts and physicians holding diplomas of the Medicolegal Institute of Paris. Also specialists may likewise be called on to perform the functions of experts in respect to disabilities.

Extraction of an Intracranial and an Intrapulmonary Projectile

At one of the recent meetings of the Société de chirurgie de Paris, Dr. André Lapointe, hospital surgeon, reported an interesting personal observation. He had occasion to extract from a patient (a young woman suffering from a revolver wound) an intracerebral bullet and an intrapulmonary bullet, near the region of the heart. This was done in one operation, controlled by fluoroscopy. The intracerebral bullet, entering by the left temple, had penetrated to a depth of 7 cm. and was located 3 cm. back of the frontal bone. Under local anesthesia induced by procain and epinephrin, a strip of scalp was excised, the opening was gently enlarged by means of a gouge, and under fluoroscopy, without any special instruments, simply by the use of ordinary blunt forceps, in a few seconds the track of the bullet was located, followed up and the bullet extracted. Irrigation of the encephalic focus by means of warm saline solution was carried out without curettage of the track of the bullet. The original opening was resected and then closed by means of a suture to the center of the strip of scalp, without drainage. The operation had been so simple and the patient had stood it so well that an immediate fluoroscopic examination of the thorax was decided on, this time with the patient in a recumbent position, the first examination having been made with the patient standing upright. In this connection an interesting discovery was made. In the upright position it had been impossible by the rotation of the screen to differentiate the shadow of the projectile from the heart's shadow, whereas in the ventral decubitus position the two shadows were easily dissociated: the projectile was therefore intrapulmonary. The second procedure was immediately decided on and carried out. An incision was made in the sixth intercostal space; the pleura

was opened; but the moment the forceps approached the projectile it disappeared, and a small sanguinolent area was noticeable. After renewed fluoroscopic examination, it was discovered that the bullet had dropped into the pleura, where it was found without difficulty. The postoperative course was excellent and ended in complete recovery.

The point to emphasize in this connection is the great utility of operations controlled by fluoroscopy, for in a case like the present one this is the only means of combining the two procedures in one single operation.

Tetanus and Antitetanic Injections

At one of the recent meetings of the Paris Surgical Society, Dr. Lenormant, hospital surgeon and agrégé professor of the Paris School of Medicine, contributed an interesting communication on the subject of tetanus and antitetanic injections. The war, in this case, as in so many other matters, furnished a wide field for the gaining of experience, and it is important to consider carefully the question of antitetanic serotherapy of which Lenormant is an earnest advocate. First, one must consider the limits of its use both as to time and as to quantity. It is without doubt a matter of paramount necessity to suppress the further elaboration of toxins by the removal of foreign bodies, but it is wrong to assume that such removal brings about the sterilization of the wounds. It is therefore indispensable that the serum be continued in doses sufficiently large (20 c.c.) and that the treatment be kept up as long as the wounds are suppurating. Lenormant saw cases of tetanus at the beginning of the war, in September, 1914, at Montdidier; then again in 1916, while he was chief surgeon of the sector in the Fifth Region and received directly from the front the moderately wounded. He observed under these conditions thirty cases of tetanus, almost all of them being late cases which developed from five to eight weeks or more after the wounding. A comparison of these two series of cases is very striking. In 1914 the cases were generalized and were all fatal. In 1916 the tetanus was almost always localized at the outset (painful spasmodic contractures in the wounded member), rarely complicated by trismus, but if so, resulting in quick death. The mortality was only 50 per cent., as compared with 100 per cent. in 1914. The wounded men of the second series had received repeated injections of antitetanic serum. Tetanus immediately became less frequent and less severe in its manifestations and often remained localized. Under these circumstances how can one deny the value of the serum? However, Lenormant reported having seen two soldiers who, in spite of repeated injections of antitetanic serum, presented, one month after being wounded, a typical tetanus with opisthotonos and generalized spasmodic contractures, but even these cases ended with recovery. The serum seems, therefore, to have been incapable of preventing the appearance of the tetanus, although it did lessen its gravity. In delayed operations the practice of injecting antitetanic serum as a preventive seems to be an excellent use, for one must not attach too great importance to anaphylactic accidents, and it is better to give a patient an injection unnecessarily than to have a case of tetanus break out. Pierre Delbet is of the same opinion. He injects 30 c.c. at each injection. The preponderance of localized cases and the benign character of the tetanus as observed in 1916 prove that the serum brought about a relative immunity in the soldiers. As for anaphylactic accidents, Delbet says he has never seen any. He called attention to the fact, moreover, that one should not mistake serum accidents for anaphylactic accidents.

Professor Quénu and Dr. Walther, agrégé professor at the Paris School of Medicine, have never used preventive injections of antitetanic serum in connection with delayed operations on the war wounded, and yet they have never seen any cases of tetanus develop. Walther has been for several years the director of an important service for the reparation of scars, and has performed a considerable number of delayed operations; yet he has had no cases of tetanus. Likewise, Dr. Petit, who has extracted in delayed operations a considerable number of intrathoracic projectiles, has encountered no cases.

Dr. Sieur, a university professor of Val-de-Grâce, continued the discussion, remarking that Roux and Vaillard long since declared that the injection of the serum alone was not sufficient, for by the injection only a certain unknown quantity of the toxins would be neutralized. If the operation has not been complete in every particular, if a focus of infection persists, new toxins develop and tetanus appears. The proper course, therefore, is to make sure, on the one hand, of careful surgical treatment, and, on the other hand, to provide for repeated injections of serum.

Marriages

WILLIAM ROSCOE JEPSON, Assistant Surgeon, Lieut. (j. g.), U. S. Navy, Sioux City, Iowa, to Miss Gladys Lee Wiles of Peconic, Long Island, N. Y., July 9.

BASCOM FRANKLIN MORRIS, Major, M. C., U. S. Army, to Miss Yvonne Randolf Stemmler, both of New York City, July 14.

MINOR LEROY HARTMAN, Garden Prairie, Ill., to Miss Minnie Larish of Scranton, Pa., at Elgin, Ill., July 9.

ROY PILLING POTTER, Marshfield, Wis., to Josephine Fritch of Cumberland, Wis., at Minneapolis, July 2.

WILLIAM C. SPANNAGEL to Mrs. Ella C. Nelson, both of East St. Louis, Ill., at Waterloo, Ill., July 1.

BENJAMIN LLOYD KNIGHT, Kenwood Park, Iowa, to Miss Florence McCollister of Iowa City, July 8.

THOMAS STANLEY O'MALLEY, Madison, Wis., to Miss Orpha Kingsbury of Salt Lake City, July 11.

FRANK RAY STEELSMITH, Des Moines, Iowa, to Miss Norma Jones of Marengo, Iowa, June 29.

THOMAS DYER ALLEN, Chicago, to Miss Florence Waring See of Hamilton, Ohio, July 21.

EDWARD CLARK MORSE to Miss Alice Beauregard, both of New Orleans, July 7.

LEE WASHBON PRESCOTT to Miss Gladys G. Gates, both of Sloan, Iowa, June 25.

JOSEPH HEINEY to Miss Irene Rosengard, both of New York City, July 15.

C. LUNSFORD NUCKOLS to Miss Ida Umberger, both of Baltimore, July 4.

Deaths

Charles Porter McNabb, Knoxville, Tenn.; University of Tennessee, Knoxville, 1884; aged 61; a member of the Tennesse State Medical Association; professor of diseases of the digestive system in the Lincoln Memorial Medical College, Knoxville; formerly dean of the faculty and professor of theory and practice of medicine in Tennessee Medical College, Knoxville; died at his home, July 14.

Norman G. Burnham, Denver; Eclectic Medical Institute, Cincinnati, 1851; Homeopathic Hospital College, Cleveland, 1855; aged 89; a member of the Colorado State Medical Society; for forty years a practitioner of Denver; a member of the County Hospital staff, the Denver Board of Health, and one of the founders of the Denver Homeopathic College; died at his home, July 19.

Wellington Wykoff Leonard, Akron, Ohio; College of Physicians and Surgeons, Baltimore, 1883; aged 62; from 1885 to 1889 assistant physician at the Cleveland State Hospital; first president of the People's Hospital, Akron; a director of the Central Savings and Trust Company; died in Mansfield, Ohio, July 13, from nephritis.

Boaz Baxter Cox ● **Lieut., M. C., U. S. Army,** Morgantown, W. Va.; Jefferson Medical College, 1907; aged 39; who entered the United States service, July 13, 1918, was sent overseas in October and was on duty with the American Expeditionary Forces at Dijon and connected with Base Hospital No. 103; died at Dijon, May 9.

Griffin H. Austin, Delcarbon, Colo.; Queen's University, Kingston, Ont., 1893; aged 50; surgeon to the Sunnyside Coal Company, Strong, Colo.; died in a hospital in Pueblo, Colo., July 14, from bullet wounds, said to have been inflicted the day before, by two Mexicans with whom he had gone on a fishing trip, near Walsenburg, Colo.

Harry Pepper ● Detroit; Detroit College of Medicine and Surgery, 1906; aged 36; chief of staff of the Jefferson Clinic and a member of the medical staff of St. Mary's Hospital, Detroit; was stricken with cerebral hemorrhage at Union City, Mich., July 7, and died the same day in a sanitarium at Battle Creek, Mich.

George Frederick Mish, Middletown, Pa.; University of Pennsylvania, Philadelphia, 1853; aged 92; a member of the Medical Society of the State of Pennsylvania; surgeon of the Fifteenth Pennsylvania Volunteer Cavalry during the Civil War; died at his home, July 14, from senile debility.

● Indicates "Fellow" of the American Medical Association.

Edward LeRoy McCoy, Indianapolis; Indiana University, Indianapolis, 1908; aged 38; who had been on duty as lieutenant, M. C., U. S. Army, with Base Section No. 3, Services of Supply, American E. F., in London, and was discharged, January 18; died suddenly in Gary, Ind., July 15.

John Brennan Moran ✠ Boston; Harvard University Medical School, 1864; aged 81; first instructor in hygiene in the public schools of Boston; for nine years a member of the Boston school board; a sanitary surgeon in the Civil War; died at his home in Allston, Boston, July 14.

Lindley Ninde Blackledge, Orosi, Calif.; Penn Medical University, Philadelphia, 1880; aged 59; a member of the Medical Society of the State of California; while driving his car over a grade crossing at Orosi, July 16, was struck by a train and instantly killed.

Ellwood B. Warner, Philadelphia; Jefferson Medical College, 1882; aged 59; for nine years school director and for a long time president of the board of council of the Penn Widow's Asylum; died at his home, July 15, from endocarditis and acute enteritis.

Bryan Anderson Barlow, Fort Wayne, Ind.; Johns Hopkins University, Baltimore, 1916; medical director of the Lincoln National Life Insurance Company of Fort Wayne; was killed at Walker, Wis., July 14, by the overturning of his automobile.

William Henry Price, Atlantic City and Point Pleasant, N. J.; University of Pennsylvania, Philadelphia, 1889; aged 54; formerly instructor in diseases of children in his alma mater; died at the Jefferson Hospital, July 8.

Townsend Seely Carpenter, Hinkley, Ill.; Northwestern University Medical School, Chicago, 1892; aged 54; a member of the Illinois State Medical Society; died at his home, July 8, from carcinoma of the stomach.

Samuel Wixom Meade, Farallone, Calif.; Long Island College Hospital, Brooklyn, 1876; aged 70; died at his home, June 29, from an incised wound of the arm, believed to have been self-inflicted with suicidal intent.

Howard Fowler Holmes, Georgetown, Mass.; Harvard University Medical School, 1901; aged 48; a member of the Massachusetts Medical Society; died in Cambridge, Mass., May 22, from tuberculosis.

Ernest Victor Keller ✠ **Major, M. C., U. S. Army;** St. Louis; Atlanta (Ga.) School of Medicine, 1911; aged 45; on duty at Fort McPherson, Ga.; died in that post, June 3, from cerebrospinal meningitis.

Julius Otto, Chicago; Northwestern University Medical School, Chicago, 1876; Rush Medical College, 1877; aged 61; died at his summer home in McHenry, Ill., July 20, from organic heart disease.

William T. Ferguson, Fort Wayne, Ind.; Royal College of Surgeons of Ireland, Dublin, 1857; aged 84; a pioneer practitioner of Allen County; died at his summer home at Clear Lake, Ind., July 12.

Thomas Franklin Mayo, Newton, Mass.; Tufts College Medical School, Boston, 1909; aged 41; a traveling representative of the United Drug Company; died in a hospital in Macon, July 13.

Clara M. Freeman, San Francisco; California Eclectic Medical College, Los Angeles, 1885; aged 56; died in the San Francisco Hospital, July 12, from carcinoma of the breast.

Emmett Robertson Bradley, Highland Springs, Va.; Medical College of Virginia, Richmond, 1912; aged 29; a member of the Medical Society of Virginia; died at his home, July 10.

Eugene G. Lewis, Stockton, Calif.; Lincoln (Neb.) Medical College, Eclectic, 1896; who has been living on a farm near Modesto, Calif.; died, June 2, from tuberculosis.

Dorman Baldwin, Oneonta, N. Y.; Albany (N. Y.) Medical College, 1877; aged 71; for many years a pharmacist of Jamestown, N. D.; died at his home, June 26.

William Brewster Sawyer, Riverside, Calif.; Harvard University Medical School, 1879; aged 64; local surgeon for the Sante Fe system; died at his home, July 9.

Harry W. Holmes, Cumberland, Ohio; College of Physicians and Surgeons, Baltimore, 1886; aged 62; died at his home, July 10, from cerebral hemorrhage.

John W. Pratt, Coatesville, Pa.; Hahnemann Medical College, Philadelphia, 1873; aged 69; at one time a member of the assembly; died at his home, July 15.

George Barnard Hibbs ✠ Mitchellville, Ia.; University of Illinois, Chicago, 1889; aged 55; died at his home, July 14, from chronic parenchymatous nephritis.

Thomas A. Bounell, Jamestown, Ind. (license, Indiana, 1897); aged 71; a member of the Indiana State Medical Association; died at his home, July 8.

Fred Cannon Peregoy, Barnesville, Ohio; Starling Medical College, Columbus, Ohio, 1890; aged 49; died at his home, June 25, from disease of the kidney.

Ellen Adelaide Curtis Richards ✠ Streator, Ill.; College of Medicine and Surgery (Physio-Medical), Chicago, 1897; aged 51; died at her home, July 8.

Wesley A. Trotter, Memphis, Texas; Medical College of Virginia, Richmond, 1852; aged 94; died at the home of his daughter in Memphis, July 6.

George Benton Mitchell, Kansas City, Kan.; Missouri Medical College, St. Louis, 1879; aged 72; died at his home, July 5, from acute gastritis.

Anson Buck, Palermo, Ont.; Jefferson Medical College, 1852; M.R.C.S. (Eng.), 1853; aged 85; died in Toronto, Ont., April 18, from myocarditis.

Rufus Alexander Markham, Waco, Texas; Missouri Medical College, St. Louis, 1885; aged 71; died at his home, July 8, from heart disease.

Edwin S. Muir ✠ Winona, Minn.; University of Minnesota, Minneapolis, 1894; aged 58; twice mayor of Winona; died at his home, July 14.

John Peck Brooks, Providence, R. I.; New York Hygio-Therapeutic College, New York City, 1866; aged 75; died at his home, about July 14.

Florence Henry Ottmer, Eureka, Calif.; Cooper Medical College, San Francisco, 1887; aged 58; died at his home, June 3, from pneumonia.

Robert Samuel Brown, Sterling City, Calif.; Columbus (Ohio) Medical College, 1883; aged 63; died in Chico, Calif., April 1, from diabetes.

William O. Stone, Bloomington, Ind.; Eclectic Medical Institute, Cincinnati, 1861; aged 85; died at his home, near Bloomington, June 25.

Harris J. Cornish, Walworth, N. Y.; Albany (N. Y.) Medical College, 1870; aged 70; died at his home, April 14, from cerebral hemorrhage.

Silas G. Hertz, Philadelphia; Medico-Chirurgical College of Philadelphia, 1889; aged 87; died at his home, July 8, from cerebral hemorrhage.

Henry W. Latham ✠ Latham, Mo.; Washington University, St. Louis, 1872; aged 67; died at his home, June 25, from cerebral hemorrhage.

Edward Grewer, Hazleton, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 81; died at his home, July 7, from cerebral hemorrhage.

Leon Rivers Harrison, Fayette, Miss.; Kentucky School of Medicine, Louisville, 1894; aged 62; died at his home, July 9, from acute gastritis.

Willis Clifford Bills, Durant, Iowa; State University of Iowa, Iowa City, 1885; aged 63; died at his home, July 6, from heart disease.

George L. Dunn, Kansas City, Mo.; College of Physicians and Surgeons, St. Joseph, Mo., 1879; aged 64; died at his home, July 5.

Charles P. Reid, Hampshire, Vt.; Loyola University, Chicago, 1872; aged 70; died at his home, May 13, from valvular heart disease.

Jacob L. Magee, Pine Bluff, Ark. (licensed, Arkansas, 1907); aged 46; died at his home, July 13, from cerebral hemorrhage.

William Gaines, Mount Jefferson, Ohio; Hospital College of Medicine, Louisville, Ky., 1893; aged 65; died at his home, July 7.

Harry Lovell Gillette, Buffalo; Niagara University, Buffalo, 1890; aged 59; died at his home, June 30, from gastric ulcer.

Frank Summers, Dyersburg, Tenn.; Hospital College of Medicine, Louisville, 1877; aged 65; died at his home, July 2.

William Rolfe Whitnall ✠ Puyallup, Wash.; University of Illinois, Chicago, 1884; aged 67; died at his home, June 25.

John F. Gibbon, San Francisco; Loyola University, Chicago, 1877; died at his home, July 11.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

"ARSENOVEN S. S." AND "ARSENO-METH-HYD"

Report of the Council on Pharmacy and Chemistry

The Council authorizes publication of the following report. This report declares Arsenoven S. S. of the S. S. Products Company and Solution of Arsenic and Mercury (formerly called Arseno-Meth-Hyd) of the New York Intravenous Laboratory, inadmissible to New and Nonofficial Remedies. The Council takes this opportunity to repeat its warning against the abuses—often dangerous—to which patients are frequently subjected when "intravenous therapy' is employed.

W. A. PUCKNER, Secretary.

Because of inquiries received, the Council took up the consideration of Arsenoven S. S. and Arseno-Meth-Hyd (now sold as Solution of Arsenic and Mercury). The preparations having been referred to a committee for consideration, this committee reported:

ARSENOVEN S. S.

"Arsenoven S. S." is a preparation put out by the S. S. Products Company, Philadelphia. The claims are made that it is "a simplified office treatment for syphilis" and is "a combination of arsenic and mercury for office use, offering maximum efficiency, safety and convenience." According to the company, "Arsenoven S. S." contains Dimethylarsenin 15.4 grains, Mercury biniodid 1/10 grain, Sodium iodid ½ grain. With regard to the identity of "dimethylarsenin" the company claims: "This product is a compound of cacodylic acid similar to sodium cacodylate but with a more pronounced therapeutic action." The committee recommends to the Council that "Arsenoven S. S." be declared inadmissible to New and Nonofficial Remedies because of unwarranted therapeutic claims.

ARSENO-METH-HYD

"Arseno-Meth-Hyd," is sold by the New York Intravenous Laboratory, New York City, for the treatment of syphilis. It comes in three dosages, 2 gm., 1.5 gm., and 0.7 gm., respectively. The claim is made that "Arseno-Meth-Hyd 2 gm." contains "2 gm. (31 grains) of Sodium Dimethylarsenate (Cacodylate), U. S. P., and Mercury Iodid 5 mg. (1/12 grain)" in 5 c.c. of solution. Physicians are told:

"In primary and early secondary case administer Arseno-Meth-Hyd 2 gm. every sixth day and Mercury Oxycyanide .008 (⅛ grain) intravenously between each injection."

"In Tertiary cases and those of long standing alternate with intravenous injection of Sodium Iodid 2 gm."

The following claims are made for the alleged effectiveness and safety of the cacodylate:

"This methyl compound of arsenic has come into almost universal use for syphilis. On account of lack of toxicity an aggressive routine can be carried on. The simple technic and absence of reactions make it most desirable for the regular practitioner. This large dose gives more uniform results both as healing manifestations and negative Wassermanns."

"Much discussion has surrounded the use of the Methyl Compounds of Arsenic and it has been demonstrated beyond doubt that Cacodylate of Soda proves an effective remedy for syphilis provided that it is properly administrated." [*sic*]

"The low toxicity of this Methyl compound of arsenic is remarkable. It is contraindicated only where a decided idiosyncrasy for even small doses of arsenic exists."

These statements are essentially false and misleading. Cacodylate has *not* come into universal use in the treatment of syphilis, nor has its usefulness been "demonstrated beyond doubt." On the contrary, H. N. Cole (THE JOURNAL, Dec. 30, 1916, p. 2012) has shown that doses so large as to produce renal injury were almost totally ineffective against syphilis. Obviously, "effective doses" if such exist, are not harmless. The dosage advised for Arseno-Meth-Hyd may not produce acute toxic symptoms; nevertheless smaller doses have produced nephritic phenomena. The "Arseno-Meth-Hyd" treatment includes the intravenous injection of about ¼ grain of a mercury salt. Although this is less than the usual dose (about 1 grain per week), the mercury is probably more effective than the cacodylate.

The committee recommends to the Council that, because of the unwarranted therapeutic claims, "Arseno-Meth-Hyd" be held inadmissible to New and Nonofficial Remedies.

The Council adopted both reports of the committee and declared "Arsenoven S. S." and "Solution of Arsenic and Mercury" ("Arseno-Meth-Hyd") inadmissible to New and Nonofficial Remedies. The committee's reports on these two products impel the Council again to call attention to the undesirable and dangerous abuses to which "Intravenous Therapy" lends itself. There is a distinct field for the intravenous administration of drugs in those cases in which immediate drug action is necessary, or when the medicament is likely to be changed if absorbed through the ordinary channels. Unless such indications exist, however, intravenous administration involves not only inconvenience and expense to the patient, but what is more important, unnecessary danger. The fact that indiscriminate intravenous administration is peculiarly profitable to certain manufacturing houses makes it all the more necessary for the medical profession to be on its guard in this matter.

In this connection it is well worth while to quote the closing paragraph from an editorial on "Intravenous Therapy" that appeared in THE JOURNAL, Nov. 11, 1916. It is as true today as when it appeared:

"Intravenous therapy will be most securely advanced if its employment is restricted to such well defined fields. [As those mentioned above.] These fields can be satisfactorily determined only by a scientific pharmacologic study of the action of these drugs when so administered in animals, as well as in man, under conditions in which the results are carefully controlled. The intravenous method is an impressive one, approaching in preparation almost to that which goes with a surgical operation. The patient is usually interested and impressed by this new, and, to him, mysterious method. There is a psychic element in his reaction to the injection which is not a factor in his reaction to the same drug when given by mouth. The intravenous injection of a complex mixture would appear to be particularly reprehensible. Little is known, as has been stated, of the results to be expected from intravenous therapy, even with simple substances. The use of complex mixtures will without doubt react against the proper use of the method."

After the report on Arseno-Meth-Hyd had been presented to the Council, a letter was received from the New York Intravenous Laboratory announcing that the preparation "Arseno-Meth-Hyd" was now called "Solution of Arsenic and Mercury" and expressing a desire to have its products accepted for inclusion in New and Nonofficial Remedies. In view of this letter, the committee's report on "Arseno-Meth-Hyd" and the Council's protest against promiscuous intravenous therapy were sent the New York Intravenous Laboratory for consideration.

The reply of the New York Intravenous Laboratory contained nothing which permitted a revision of the preceding report. The change of the name of "Arseno-Meth-Hyd" to "Solution of Arsenic and Mercury" means little as the name still does not disclose the important fact that the arsenic is present as sodium cacodylate, nor does it tell the character of the mercury compound. The Council voted that "Solution of Arsenic and Mercury" and "Arsenoven S. S." be declared inadmissible to New and Nonofficial Remedies because the therapeutic claims advanced for them are unwarranted (Rule 6) and because the names of these pharmaceutical preparations are not descriptive of their composition (Rule 8).

In filing its reply with the Council, the New York Intravenous Laboratory announced that that document would be circulated to the medical profession. This is of course the firm's privilege. The Council notes, however, with interest, that the reply is devoted almost entirely to points which were not raised by the Council and that it fails to discuss the objections which were actually made.

The reply constantly confuses the efficiency of cacodylate in anemia and in syphilis. The Council's report on "Arseno-Meth-Hyd" does not discuss or even touch on the question of cacodylates in anemia. It is confined to a discussion of the disappointing results obtained with cacodylates as such (i. e., without mercury) in the treatment of syphilis. This attempt on the part of the New York Intravenous Laboratory to confuse the issue and to attribute to the Council an opinion that it has never stated or held is an inexcusable misrepresentation. The company in its reply said:

"We believe that you have previously stated that a solution cacodylate of soda possesses no more action than so much water. In other words, it was inert. Now you try to show that it produces renal injury."

The Council has never declared that cacodylates are inert. In the report it is merely stated "that doses so large as to produce renal injury were almost totally ineffective against syphilis." Neither has the Council stated that cacodylate is "peculiarly dangerous." In fact the absolute toxicity of cacodylates is low but Cole's results were quoted as a caution that "effective" doses are not harmless. A great portion of the remainder of the reply is devoted to disparaging arsphenamin—a product that is not involved in this action of the Council, and one about which the physician is amply informed.

As regards the editorial on intravenous therapy, a concession may be made the New York Intravenous Laboratory: intravenous injections are no longer quite as "impressive" as in 1916, but that does not alter the fact that they should be used only when a distinct advantage is to be gained.

"ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY"

Under the caption given above, the *Journal of the Missouri State Medical Association*, in its July issue, speaks editorially as follows:

The Council on Pharmacy and Chemistry of the American Medical Association is a department of our national organization that has not received the plaudits and encomiums of a wildly joyous medical profession nor the grateful praises of the enthusiastic manufacturer of pharmaceuticals. The Council seems indeed to be the unloved child of the entire family of subsidiary bodies of the association. Perhaps the reason for this may be found in the character of its duties, for the Council must expose fraud, sometimes in high places, and protect the physician from being duped by avaricious persons and by persons who are themselves sometimes the victims of their own credulity. It thus happens that the sale of some proprietary article previously held in high esteem by the practitioner proves valueless, perhaps even fraudulent. The practitioner, however, may have credited much of his success in treating certain conditions to that preparation and the maker has had success in accumulating dollars from its sale and both parties emit a loud and vicious roar against the Council, because they both lose money. Nobody wants to be "protected" against making money—make it honestly, if possible, but make it—but this black sheep among the Councils of the American Medical Association insists on their making their money honestly!

Despite many obstacles thrown into its path, the Council on Pharmacy and Chemistry has serenely pursued its allotted tasks, corrected its mistakes, improved its methods, and today stands as the only medium to which the honest physician may turn for information—not misinformation—regarding proprietary articles. During the war the Council and the chemical laboratory were in close cooperation with the Surgeon-General's Office, testing and investigating every article offered to the government for the treatment of the sick soldiers. The variety and the number of fakish and fraudulent stuff offered to the Surgeon-General was a pitiable exhibit of the mental gymnastics of some people. Just now the Council and the laboratory have a new and important field before them, i. e., to protect the physicians against worthless and useless serums, vaccines and synthetics. It will be the Council's unpleasant duty to expose the fraudulent and useless among these articles and stamp truth on those found worthy.

We seem to have wandered from the topic in our caption but not so in reality because the burden of our thought is to lend our influence to the spread of the motto of the Advertising Clubs of the World, namely, "Truth in Advertising." It is our purpose to stimulate a larger degree of enthusiasm for the work of the Council on Pharmacy and Chemistry and the Chemical Laboratory, a more generous flow of inquiries concerning articles unfamiliar to the physician, and particularly to urge that the words "accepted by the Council on Pharmacy and Chemistry of the American Medical Association" be printed on the label and on all advertising circulars of proprietary articles that have been admitted to New and Nonofficial Remedies. Then, when pamphlets and circulars are received by physicians they will read the statements of manufacturers with sympathetic understanding and with full confidence in the verity of the declarations. The importance of creating just that sort of receptivity in the mind of the prospective buyer is so well known to the astute publicity expert that it is needless for us to dwell on its advantages. Every proprietary article advertised in our journal, in THE JOURNAL of the American Medical Association, and in the other state association journals, as well as in several well-edited privately owned journals, does in effect say to the reader that the articles so advertised are accepted by the Council because only proprietary articles so accepted are accepted by us. The fact is further acknowledged when these firms are permitted to exhibit their goods at our annual sessions for again the rule is enforced that only proprietary articles which have been approved by the Council may be placed on display.

Why not complete the circle of ideas—it would not be a "vicious circle"—by printing on labels, in advertisements and circulars, the words: "Accepted by the Council on Pharmacy and Chemistry"?

Correspondence

"USING VARICOSE VEINS FOR INTRAVENOUS INJECTIONS"

To the Editor:—I agree with Dr. Rosenheck's statement (THE JOURNAL, July 19, 1919, p. 214) that physicians who administer arsphenamin occasionally encounter a case in which the veins in the cubital space are difficult to locate. I do not, however, agree with his suggestion to select the varicose veins of the legs. Varicose veins, from a pathologic standpoint, are in a state of subacute or chronic inflammation. This explains the frequent occurrence of acute phlebitis in the lower extremities of females after slight or no trauma. The introduction of an irritant drug, such as arsphenamin, into the veins is sufficient to excite an acute exacerbation resulting in thrombosis and complete obliteration. This, perhaps, does not generally follow after the first injection, but will appear in one of the later ones. To improve on this, I have found the dorsal surface of both hands and wrists convenient places to locate veins without any difficulty. A tourniquet is placed over the lower third of the forearm, and within a minute several veins can be seen to stand out prominently.

CHARLES WOLF, M.D., New York.

OPERATION VERSUS ROENTGEN-RAY TREATMENT OF UTERINE MYOMA

To the Editor:—The paper of Dr. Arthur Stein on this subject in THE JOURNAL, July 12, p. 95, needs further comment on the other side of the question. Dr. Stein questions the propriety of radiation instead of operation in the first place because of the risk of mistaking a sarcoma of the uterus or ovary for a myoma; and he cites as an instance the case of a young girl in her twenties in which a proposed radiation was abandoned in favor of operation. He then reveals that the resulting operation did not cure the patient. My impression is that the indications in this case pointed to radiation as the most hopeful treatment, particularly at this age. The question of the prevalence of sarcomas among supposed fibromyomas of the uterus has received undue prominence. The differential diagnosis, moreover, is by no means difficult if the patient's history is considered, bearing in mind

that sarcomas present a history measurable in months, while fibromas or myomas may be traced back for years in practically all cases at the time that they reach the gynecologist. One should also suspect the sarcomatous character when a reasonably large growth is discovered in a woman under, say, 28 years of age. But all this is beside the question of the treatment of fibroids, for sarcomas are so rare as to present no practical problem in the matter.

Concerning other possible errors in diagnosis in the absence of an operation, it may be said that radiation is not the worst way to discover these mistaken diagnoses. The possible loss of time cannot seriously impair the result of a subsequent operation. An unnecessary operation, on the other hand, is far more serious.

I question, further, the correctness of the view that the presence of chronic inflammation of the adnexa renders a fibroid not amenable to radiation, for I have frequently employed the screened roentgen ray, and there have been many instances giving the clinical symptoms of inflammatory or catarrhal tubes which yielded ultimately to patient collateral treatment, and in which finally recovery occurred without operation. Barring encysted pus alone in this situation as unsuitable to anything but operation, these cases may be counted on to result in symptomatic cure, with varying degrees of subsequent decrease or disappearance of the harmless residue.

G. BETTON MASSEY, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SODA ASH IN WATER

To the Editor:—We have for some time been using soda ash in the feed water of our locomotives, about a half pound to 1,000 gallons. Our employees occasionally drink this water. Is there anything harmful in this practice?

GEORGE K. MEYNEN, M.D., Jamaica, N. Y.

ANSWER.—Caustic lime and soda ash are commonly used together for water softening. The amount of soda ash used in the case cited does not seem excessive, but no data are given as to the original hardness of the water. If the water is bacterially pure it is not likely that the health of those drinking the softened water would be endangered. The process of water softening by filtration through artificial zeolite, as suggested by Jackson in the *Journal of the American Water Works Association*, March, 1916, p. 423, is worthy of special attention.

ELIMINATION OF ANTS

To the Editor:—I want to ask you if you can tell me how to kill or eradicate ants that take the entire place, especially the drug room. They are the little red ants. I have tried everything; they still come in. Let me hear if you have anything for them.

J. P. BRANDON, M.D., Essex, Mo.

ANSWER.—A special bulletin prepared by the Department of Agriculture, known as "Farmers Bulletin 740," by Dr. C. L. Marlatt, entitled "House Ants: Kinds and Methods of Control," may be had free on application to the department. This bulletin describes the various ants occurring in North America, giving their habits and life history, and a very particular article on "Means of Controlling House and Lawn Ants." In brief, it is suggested that efforts be made to locate the nest of the ant and that this be destroyed by injecting carbon disulphid, kerosene or gasoline into the opening. Ants, of course, are attracted to houses by food substances, and all food substances should be placed in ant-proof metal containers or in ice boxes. It is not believed that the repellent substances, such as camphor or naphthalene flakes or moth balls, have any value. It is suggested that the ants may be collected by the placing of attractive baits, such as small sponges moistened with sweetened water. These baits may be collected several times a day and the ants swarming on them destroyed by immersion in boiling water. A more efficient remedy is a syrup poisoned with sodium arsenate. The formula for the preparation of this syrup is: 1 pound of sugar dissolved in a quart of water, to which should be added 125 grains of sodium arsenate. The mixture should be boiled and strained, and on cooling used with the sponges as described. Precautions must be taken in preparing this syrup and safeguarding it afterward to prevent its being the cause of poisoning to human beings or domestic animals.

SUGAR IN FORMULA FOR DIARRHEA IN INFANTS

To the Editor:—In an article entitled "The Etiology and Treatment of the Diarrheal Diseases in Infancy" (THE JOURNAL, June 7, 1919, p. 1653), Dr. Lewis Webb Hill, speaking of the treatment of fermentative diarrhea says: "All sugar should be omitted from the milk modification, and the solution boiled for three minutes. One teaspoonful of compound chalk mixture should be added to each bottle." Now, from the first sentence in this quotation, we learn that "all sugar should be omitted from the milk modification"; and in the next sentence, the author advises to add one teaspoonful of compound chalk mixture to each bottle, which means to add a little sugar to each feeding, because compound chalk mixture contains 10 per cent. of sugar. If the author meant that a little sugar given in the shape of compound chalk mixture can do no harm in fermentative diarrhea, his emphatic statement: "*All* sugar should be omitted from the milk modification," does not imply that. There are many physicians who hold that *no sugar at all* should be fed to infants with fermentative diarrhea; and not knowing that compound chalk mixture contains sugar would, on the strength of Dr. Hill's advice, prescribe the mixture to their little patients, and thus administer sugar unintentionally. It is in this way that the quotation from Dr. Hill's article is inconsistent and misleading.

LOUIS BUCKLE, M.D., New York.

ANSWER.—The question was referred to Dr. Hill, who replies that "the small amount of sugar in chalk mixture does no harm. If any one believes that it may do so, he may use a prescription of chalk and water instead."

GROUP MEDICINE

To the Editor:—Please send me any information or data you may have in connection with group medicine and its practicability for the general practitioner, particularly in rural districts.

E. R. HUNTER, M.D., Washington, D. C.

ANSWER.—The following references may be consulted to obtain a general view of the subject:

Gutmann, J. H.: Cooperation in Medicine, *Albany M. Ann.*, October, 1912.
Poe, F.: Professional Cooperation, *J. Kansas M. Soc.*, October, 1912.
Crumbine, S. J.: Getting Together in Kansas, THE JOURNAL, Feb. 15, 1913, p. 539.
Knapp, H. R.: Cooperation Among Doctors, THE JOURNAL, May 16, 1914, p. 1578.
Birtch, F. W.: A "Group Study" Plan for a Diagnostic Team Acting as a Laboratory for the Profession, THE JOURNAL, May 27, 1916, p. 1672.
Medical Partnerships—So-Called Group Plan, *Bull. M. & Chir. Fac. Maryland* **8**: 226 (June) 1916.
Axtell, J. T.: Team Work in Medicine, *J. Kansas M. Soc.* **16**: 258 (Sept.) 1916.
Behlow, W. W.: Group Study, THE JOURNAL, Feb. 3, 1917, p. 360.
Pollock, R.: *Interstate M. J.* **24**: 840 (Sept.) 1917.
Savage, A. J. B.: Group Medicine, *Mod. Med.* **1**: 98 (June) 1919.
Lewis, F. P.: Group Study a Necessity in Ophthalmic Research, THE JOURNAL, June 28, 1919, p. 1893.

EPINEPHRIN TEST FOR HYPERTHYROIDISM

To the Editor:—Please give directions for applying the epinephrin test for hyperthyroidism.

R. R. ELMORE, M.D., Louisville, Ky.

ANSWER.—The test referred to is that called the "skin reaction of Goetsch." Eight minims of a 1:1,000 solution of epinephrin hydrochlorid are diluted with an equal quanity of sterile water and injected hypodermically into the arm. Immediately there is formed an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of from one and a half to two hours, the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection, and is the most characteristic part of the test. Accompanying the local action may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Alaska: Juneau, Sept. 2. Sec., Dr. L. P. Dawes, Juneau, Alaska.
Hawaii: Honolulu, Sept. 9-11. Sec., Dr. J. R. Judd, Honolulu, Hawaii.
Iowa: Des Moines, Sept. 16-18. Sec., Dr. Guilford H. Sumner.
New Hampshire: Concord, Sept. 11-12. Sec., Dr. Chas. Duncan, Concord, New Hampshire.
New York: Albany, Buffalo, New York and Syracuse, Sept. 16-19. Mr. Herbert J. Hamilton, Assistant, Professional Examinations, Albany.

A BOGUS MEDICAL DIPLOMA IN AUSTRALIA

The information collected at the headquarters of the American Medical Association regarding medical colleges and the medical profession is now sufficiently complete to prevent the issuing of bogus medical diplomas without an early discovery. Through this information the fraudulent nature of some diplomas issued years ago is being brought to light. For example, the following report gives an account of a diploma which appears to have been issued illegally twelve years ago to an individual now residing at Hobart, Tasmania. Thus the information collected by the American Medical Association is rendering a service to other countries as well as to the United States.

In June, 1917, a letter was received from Mr. Arthur E. Hayward, secretary of the Tasmania Branch of the British Medical Association, Hobart, asking in regard to the legal status of the Harvey Medical College of Chicago, and the character of the medical training given in it. The reply was that the college named became extinct in 1903.

In a second letter, received in September, 1917, Mr. Hayward asked whether any one could have received a degree from the Harvey Medical College in 1907, and requested some legal declaration to prove that no degrees had been issued by that college after 1905. In reply, a certified copy of a resolution which appeared as an insert in the annual announcement of the Jenner Medical College, Chicago, issued in 1905, was sent showing, that after the organization of a "Harvey-Jenner Medical University," the Harvey Medical College affiliated itself with, and requested its remaining students to enroll for the session of 1905-1906 in, the Jenner Medical College. Sept. 7, 1917, we wrote to the secretary of state of Illinois, asking what final disposition had been made of the charter of the Harvey Medical College. The reply stated that the charter was canceled, July 1, 1902, for default in filing an annual report. A copy of the reply was forwarded to Mr. Hayward.[1]

Nothing more was heard until in October, 1918, when two cablegrams were received signed "Scott, President, Medical Council," asking whether a student named Ratten had, at any time, attended or graduated from Harvey Medical College. The cablegram stated that Ratten held a diploma from the college named, dated March 8, 1907. The president was informed that Ratten was not recorded either as a student or a graduate of the Harvey Medical College.

In December two more cablegrams were received from Dr. Scott asking whether any Harvey Medical College was existing in Chicago in March, 1907. The reply was in the negative.[2]

The reason for the inquiries was made more clear in January, 1919, when a letter from Dr. Robert E. Scott, president of the Medical Council of Tasmania, explained that the cablegrams referred to one Victor Richard Ratten. He said that the council of which he was president and which was a statutory body, constituted for the purpose of keeping a register of the qualified practitioners of Tasmania, was on the point of being abolished because it had dared to run counter to the premier, and had questioned Ratten's qualification.

A copy of the Hobart *Mercury* of Dec. 12, 1918, enclosed with Dr. Scott's letter, contained a report of a "Ratten Royal Commission" which, it was shown, had been appointed by the premier of Tasmania to inquire into charges against Ratten made by the Tasmania Branch of the British Medical Association. In the commissioner's report a diploma said to have been held by Ratten was reproduced as follows:

HARVEY MEDICAL COLLEGE

Chicago — Coat of Arms. — Illinois.

To all to whom this Diploma shall come, Greeting:

Be it known that Victor Richard Ratten, having completed the Course of Study required by this institution and having passed a satisfactory examination and recommendation by the Faculty as qualified to enter upon the practice of Medicine and Surgery; and by virtue of the powers vested in us by the State of Illinois, we hereby confer upon him the Degree of

Doctor of Medicine

with all the rights, privileges, immunities, and honours pertaining thereto.

In Testimony Whereof, the Harvey Medical College has caused this Diploma to be signed by the President and Secretary of the Board of Directors, and the official Corporate Seal to be hereto affixed at the City of Chicago in The State of Illinois, U. S. A., this eighth day of March, A. D., 1907.

Harry P. Husley, M.D., Dean of Faculty,
M. A. Brown, M.D., Secretary of Faculty,
W. E. Warner, M.D., Secretary of Board of Directors,
William Gale French, A.M., M.D., President of Board of Directors.

INQUIRY BY COMMISSIONER

In his report, the commissioner said he had seen the cable replies from the Council on Medical Education in regard to the nonexistence of the Harvey Medical College but, as a result of other inquiries, concluded, nevertheless, that it still existed. The commissioner stated that he had sent the following cablegram *to two individuals whose names were attached to Ratten's diploma*—a paper, the validity of which had been questioned:

Have before me diploma of Victor Richard Ratten issued by you and others on behalf Harvey Medical College, dated March, 1907. Did you issue same, and what are relations of Harvey Medical College and Harvey-Jenner College?

To this the commissioner states he received the following replies:

Am looking up records; will cable to-morrow.—W. G. French.

And on the next day:

Diploma issued Victor Richard Ratten, March, 1907, by me and others on behalf Harvey no connection with Harvey-Jenner College.—W. G. French.

Cabled information received by the commissioner through the Continental and Commercial Bank of Chicago showed that Harvey Medical College, Chicago, was in 1907 a duly chartered institution.[3] Then follows the account of an examination of "Dr." Ratten. In answer to questions asked by the commissioner, Ratten is reported to have stated under oath that he was surgeon-superintendent of Hobart General Hospital; that he recognized the certificate (evidently the diploma of the Harvey Medical College already reproduced), and that it had been issued to him by the Harvey Medical College which, he said, was then an existing institution. No questions are recorded in the report, asking whether the college ever held classes or carried on medical teaching or whether Ratten was ever in attendance, or studied medicine at the Harvey Medical College. In his report the commissioner concluded that the Harvey Medical College existed in 1907 and that the diploma which Victor Richard Ratten produced in 1907 was granted to him by the college named.

COMMENTS REGARDING THE INVESTIGATION

Notwithstanding the fact that evidence was presented which questioned the validity of Ratten's diploma, the commissioner, according to the reports, secured evidence from those whose names were attached to the diploma and *who would not be expected to show that the diploma was invalid!*

1. That more than one Harvey Medical College had been chartered was not suspected by the writer; it was not mentioned in the letter from the secretary of state of Illinois, and was not revealed until later, as shown in this report.

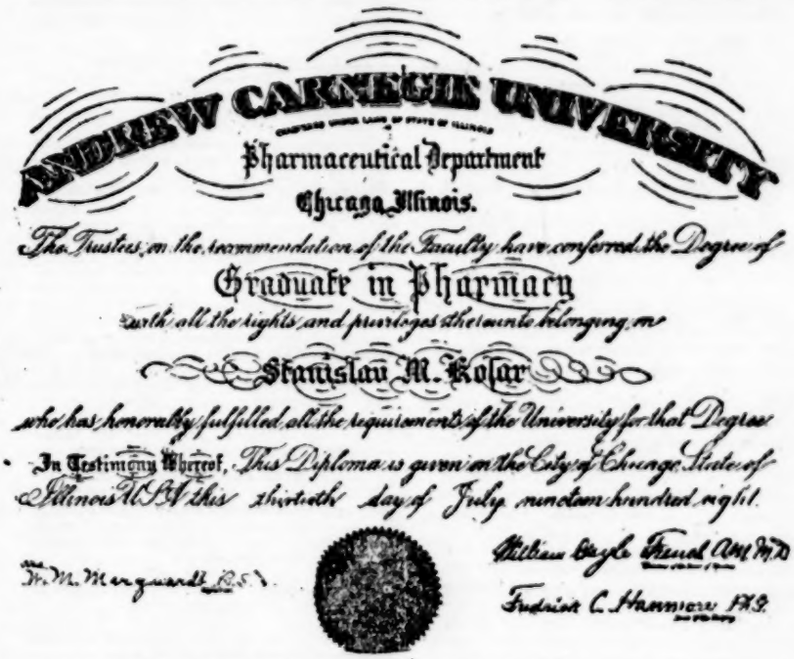
2. As shown later in this report, the charter of the Harvey Medical College had been revived in 1907; the statement is true, nevertheless, that since 1905 no institution of that name has had a bona fide existence, with headquarters, faculty, published announcements, or which had openly enrolled students or conducted medical teaching.

3. The cable did not ask whether the college existed on March 8, 1907, the date on Ratten's diploma.

The character of the investigation is further referred to in an editorial appearing in the *Medical Journal of Australia* of Dec. 28, 1918, page 523, as follows:

Notwithstanding the fact that a well-known official of the American Medical Association, the most reputable and representative medical institution in the United States of America, maintains that the Harvey Medical College did not exist in 1907, and that Ratten was neither a student nor a graduate of that body, the Royal Commissioner has found that a Harvey College not only existed in 1907, but actually issued a diploma to Victor Richard Ratten, setting out that he had passed through the prescribed course of study, and had satisfied the "Faculty" that he was qualified to practice medicine. It will be noted from the proceedings of the Commission that the Royal Commissioner failed to wait for information from the Attorney-General of Illinois, and merely announced his intention of obtaining the assistance of the American Government. Instead of seeking and acquiring official information from the most reliable source, the Royal Commissioner adopted the extraordinary procedure of communicating with the persons whose names appear on the diploma produced by Ratten. It is significant that those names are, so far as we are aware, unknown in Australia, and that, despite the repeated statement of the Secretary of the American Medical Association that the Harvey Medical College did not exist in 1907, the cabled assertion of the persons named on the document appears to have been accepted as final.

Doctor's "Diploma" Sells for $75; Its Grantor Is Quickly Arrested


ANDREW CARNEGIE UNIVERSITY
Pharmaceutical Department
Chicago, Illinois.

The Trustees, on the recommendation of the Faculty have conferred the Degree of
Graduate in Pharmacy
with all the rights and privileges thereunto belonging on
Stanislaw M. Kosar
who has honorably fulfilled all the requirements of the University for that Degree
In Testimony Whereof, This Diploma is given in the City of Chicago State of Illinois U.S.A. this thirtieth day of July nineteen hundred eight.

The above is a reproduction of a diploma of the Andrew Carnegie University as it was reproduced in the Chicago *Tribune* of Aug. 2, 1908, accompanying the printed news item, which is also reproduced herewith. The two lines above the diploma were added in the *Tribune's* article. Note the signatures on the diploma.

MORE RECENT INFORMATION

The information received from Dr. Scott and from the commissioner's report led to a further investigation in regard to the Harvey Medical College by the Council on Medical Education. Following a conference with Mr. Francis W. Shepardson, director of the department of registration and education, the latter examined the records in the office of the secretary of state and discovered that, instead of one, three institutions had been incorporated which bore, or included, the name of the "Harvey Medical College." Mr. Shepardson reported these as follows:

1. Harvey Medical College incorporated, Nov. 23, 1891, by Alva Camp, Willard P. Case and Charles D. Camp. The subscribers to the capital stock were W. P. Case, 2 shares; G. E. Giles, 1 share; J. C. Ivey (or Irey), 10 shares; Charles D. Camp, 237 shares. Ivey and the two Camps and Frank C. Vierling, Frank Baker and J. R. Holmes made up the first board of trustees. This charter was canceled, July 1, 1902, because of failure to file an annual report.[4]

2. Harvey Medical College, incorporated, Aug. 28, 1894, by James A. Stough, George Warren Reynolds and Charles D. Camp. These were the subscribers to the capital stock and the members of the first board of trustees. This college made annual reports until 1903. The charter was canceled by the secretary of state, March 5, 1904. It was reinstated, March 19, 1907. It has made annual reports each year up to and including Feb. 11, 1918. In that report it is said that the corporation is not now in actual existence, but "said corporation expects to resume active business as a medical college and desires to keep its charter intact." President, Dr. Frances Dickinson, 2750 W. 35th St., Chicago, care of Albert Dickinson Seed Company. Secretary and treasurer, Phillip S. Brown, Montana Bldg., Missoula, Mont. Their term of office "until their successors are elected." The statement also says that "the corporate seal is mislaid."

3. Harvey Medical College and Hospital, incorporated, Jan. 9, 1907, by William Gayle French, Harry P. Hurley, W. E. Warner and L. W. Rowell. Nov. 2, 1908, the name of this institution was changed to Jackson University, W. M. Marquardt was named as secretary, and W. G. French as president. Sept. 27, 1909, the name was changed to Jefferson University, W. M. Marquardt being secretary, E. S. Stafford, vice president, and W. G. French signing his name as notary public. This charter was canceled, on May 17, 1912, a proper notice of dissolution being filed by French and others.

Statements in the catalogues of the only bona fide Harvey Medical College—the only one which had the essential teachers and laboratories; the only one which openly enrolled students and issued annual announcements—show that the first two charters were secured for that school. Its last announcement that of 1904-1905, contains a historical statement which says that the Harvey Medical College was first incorporated in 1891 and for certain reasons obtained a new charter in July, 1894.

The information on file in our biographical department shows that the Harvey Medical College ceased to hold classes and teach students at the close of the session of 1904-1905; that in the session of 1905-1906 the students remaining were urged to enroll and finish their training in the Jenner Medical College; that its charter had expired in 1904, and that, although the charter was reinstated, March 19, 1907, the college did not resume medical teaching.

WAS RATTEN'S DIPLOMA VALID?

From August, 1894, to July 1, 1902, the bona fide Harvey Medical College had two charters. The first of these was canceled, July 1, 1902, and the second was canceled in 1904. The latter was not revived until March 19, 1907—eleven days after the date on the diploma issued to Victor Richard Ratten. According to Mr. Shepardson's statement, in their reports, the officers of this college stated that the corporation was not in actual existence, but expected at some future time to resume active business as a medical college and for that reason desired to keep the charter intact. This shows that the institution was making no attempt to conduct classes or to teach medical students and, therefore, was not issuing degrees. As will be noted, neither of these charters were alive, March 8, 1907, the date on the diploma issued to Victor Richard Ratten.

Charter 3, that of the French-Hurley-Warner-Harvey Medical College and Hospital, incorporated, Jan. 9, 1907, is the only one which was legally alive, March 8, 1907. The names of the incorporators appear to be identical with those signed to Ratten's diploma. Although the name Harry P. Husley appears on the printed reproduction of Ratten's diploma, this could easily be due to mistaking the written "r" in Hurley for an "s." Note, however, that the name of the institution on the diploma issued to Victor Richard Ratten is not the "Harvey Medical College *and Hospital*" but

4. This is evidently the institution referred to by Secretary of State Emerson in his letter of Sept. 10, 1917, to which reference has already been made in this report.

the "Harvey Medical College"—an institution which was not alive, March 8, 1907. This confusion of names throws still more doubt on the validity of Ratten's diploma.

Even after securing a charter for an institution, which seems to have had no existence except on paper, the French-Hurley-Warner crowd appears to have issued a diploma to Victor Richard Ratten under the name, not of the institution they had chartered, but under the name of what was a bona fide institution between 1891 and 1905. Additional light is thrown on the practice of those who incorporated the Harvey Medical College and Hospital by the fact that after a year and ten months the name of that institution was changed to the "Jackson University," and ten months later was again changed to the "Jefferson University." Note also in Mr. Shepardson's account of the Harvey Medical College and Hospital that after the name was changed to the Jackson and Jefferson Universities, one W. M. Marquardt was named as secretary and W. G. French as president. This indicates a relationship between the French-Hurley-Warner crowd with another institution reported to have existed on paper only, the Andrew Carnegie University, which in 1908 issued an alleged illegal diploma bearing the names of W. M. Marquardt and William Gayle French. Another statement bearing on the validity of Ratten's diploma is that of Dr. Frances Dickinson, who was president of the bona fide Harvey Medical College during its existence, who says that any diploma of Harvey Medical College issued after 1894 was invalid unless it bore her personal signature. She also says that neither French, Hurley nor Warner ever had any relationship with the Harvey Medical College either as officers or as faculty members.

CHICAGO SUNDAY TRIBUNE: AUGUST 2, 1908.

SUNDAY TRIBUNE: AU

BOGUS DIPLOMAS FOR SALE AT $75.

Two Men Pretend to Be Able to "Fix" the State Board of Health with Money.

DRUG CLERK TRAPS THEM

Scheme Declared to Be Worst "Fake" Medical College Ever Unearthed.

Through an arrest of two men who yesterday tried to fleece a west side drug clerk out of $75 for a pretended diploma in pharmacy the Lawndale police unearthed a "fake" medical college.

C. O. Hoffman, attorney for the state board of health, declares the case to be the most flagrant that has ever come to his notice.

The men under arrest are William G. French and Flavia Jindra, both of whom claim to be physicians. Neither is more than 25 years old. A few days ago they called upon Stanislaus M. Kolar, a drug clerk at Twenty-sixth street and Homan avenue, and represented to him that they could "fix" the state board of health so that he could procure a diploma without taking the regular examination. They would have to "fix" Dr. James A. Egan, secretary of the board, they said, but this could be done for a money consideration.

Drug Clerk Tells the Police.

Kolar told the visitors that he would think the matter over, and when they would call again he said he would be able to give them a definite answer.

He reported the proposition to Detectives Houkhan and Brophy of the Lawndale station. They told him to pretend that he wanted to purchase the diploma and in that way the men would be trapped.

After several interviews with Kolar, the two "professors" informed him that the diploma was ready and would be given him for $75. It was arranged that he was to meet French and Jindra yesterday afternoon at the Great Northern hotel.

Delivery of the "Diploma."

The detectives notified Attorney Hoffman, and he was at the Great Northern when Kolar appeared, at 4 o'clock. French and Jindra shook hands with Kolar and led him from the hotel to Wabash avenue and Washington street. Hoffman and the two detectives trailed along behind.

When Kolar and the two "doctors" reached Wabash avenue and Washington street French disappeared for a few minutes. When he returned he carried in his hand the bogus diploma.

Kolar was then led by the men to the entrance of a building where he was shown the diploma with his name nicely written on it. "Andrew Carnegie university" was the name of the college, and the diploma was signed by French as "president of the board of trustees." The name "Frederick C. Hanmore" is signed to the diploma as dean of the faculty, and the registrar is "W. W. Marquardt."

Attorney Hoffman says that the latter named person is the wife of French.

Detectives Pounce on the Pair.

After Kolar had handed over the $75 to the men and was walking away with the diploma the detectives rushed up and arrested French and Jindra. They are charged with operating a confidence game.

Jindra lives at Twenty-fifth street and Trumbull avenue. He at one time was connected with a hospital in Europe.

French lives at Homan avenue. He claims to be a graduate of the Hahnemann Medical college and has practiced in Texas.

Calls Them a Bold Pair.

"They are the boldest pair that I have ever met with," said Attorney Hoffman. "I learn that they purchased a lot of surgical instruments and medical supplies, and they were going to Milwaukee to open a hospital. The Andrew Carnegie institution, which they claimed to be at the head of, does not exist. I would not be surprised to hear that they have sold a number of fake diplomas."

The above is a reproduction of the news-comment which accompanied the publication of the diploma of the Andrew Carnegie University, also reproduced herewith.

RECORD OF WILLIAM GAYLE FRENCH

The commissioner's report gives "William Gale French, A.M., M.D., President of Board of Directors." The records of the American Medical Association show that William *Gayle* French was born in 1885; graduated from Hahnemann Medical College and Hospital, Chicago, in 1906; was licensed in Texas and in Michigan in 1907, in Indiana in 1908 and in Illinois in 1913. The medical directories show frequent changes of address as follows: In 1906 in Brook, Ind.; in 1909, Greensburg, Ind.; in 1910, Indianapolis; in 1912, Kingsbury and Laporte, Ind., and 1914 and 1916, inclusive, Chicago. It is William *Gayle* French also who is reported among the incorporators of the Harvey Medical College and Hospital. The cablegrams received by the commissioner at Hobart leads one to believe that this is the French whose name appears on the diploma issued to Victor Richard Ratten. It is not probable that there are two individuals having names so nearly alike.

In the Chicago *Tribune* of Aug. 2, 1908, was published a photographic reproduction of another alleged bogus diploma—one from the "Andrew Carnegie University" which bears the name of William Gayle French as "President of the Board of Trustees," and of W. M. Marquardt as "Registrar."[3] According to the report in the same paper, French was arrested by two detectives in the act of delivering the diploma and receiving $75 for it. The report also says that the Andrew Carnegie University has no existence except on paper. This report indicates, therefore, that William Gayle French was not averse to handling bogus diplomas.

News clippings from the Chicago *Herald* for Oct. 5, 1915, and the Chicago *Tribune* for Oct. 20, 1915, report the arrest of William Gayle French and another physician in connection with an alleged abortion produced on a young woman who died under the operation. The man with French seems to have been held to the grand jury; French, himself, was exonerated. French then changed his address to Detroit, Mich. A clipping from the Detroit *Times*, June 26, 1918, under the head "Warrants Out For Quacks," states that warrants were issued for the arrest of Dr. W. G. French charging him with violating the state law against advertisements for the cure of venereal diseases. In the Detroit *Times* of July 1, 1918, under the heading "Quacks on the Jump to Escape," the following statement appears:

> The quacks are on the run. Dr. W. H. French whose "sick men" advertisements were the delectation of readers . . . of family newspapers, has left the city two jumps ahead of the warrant which Special Prosecutor Henry A. Montgomery swore out against him.

The Chicago and Detroit papers made other statements similar to those quoted reflecting on French's character.

A letter dated July 23, 1918, from B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, says:

> Dr. William Gayle French, Detroit,—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected.

3. See the reference to these men in the description of the French-Hurley-Warner-Harvey Medical College and Hospital.

CONCLUSION

As we have seen, two institutions were chartered bearing the name of "Harvey Medical College," and one was chartered with the title "Harvey Medical College and Hospital." The last named was the only institution having a legal existence, March 8, 1907, the date on the diploma issued to Victor Richard Ratten; but even this was not chartered until Jan. 9, 1907, only two months prior to the date on Ratten's diploma, and the signatures on Ratten's diploma would also indicate that this is the institution which issued it. It was not in existence long enough, however, to have given even a single term of instruction, and there is no evidence to show that it ever had a college building large enough for the conducting of classes, that it ever possessed a faculty or laboratory equipment, or that it ever issued an announcement or did actual teaching. Note, also, that the legal title of this institution is the "Harvey Medical College *and Hospital*," whereas, the heading of the diploma issued to Ratten, as reproduced in the royal commissioner's report, was the "Harvey Medical College." Again it is evident that the names signed to the diploma issued to Ratten are of persons who had no connection, official or legal, with the institution which issued it. Again, the institution named on the diploma issued to Ratten had no actual existence later than 1905, so far as an organized faculty, laboratory equipment and teaching facilities are concerned, and its charter, which had been canceled in 1904, was not revived until March 19, 1907, eleven days after the date on Ratten's diploma. All these facts indicate the fraudulent character of the diploma issued to Victor Richard Ratten, which evidence is strengthened by the fact that a year later one of the persons named as having signed Ratten's diploma is reported to have been caught in the act of selling an alleged bogus diploma to another individual.

This matter is still under investigation by the Tasmania Branch of the British Medical Association.

Social Medicine, Medical Economics and Miscellany

THE HEALTH OF MUNITION WORKERS

The final report of the British Committee on Health of Munition Workers, reprinted in this country by the Bureau of Labor Statistics in Bulletin 249, contains a large amount of data accumulated by the committee during the four years of its existence. Different sections of the 375-page pamphlet are devoted to almost every phase of industrial welfare. In the concluding section of the report, the committee has summarized its findings in ninety-two paragraphs which constitute a concise summary of the industrial experiences of the five years of war.

The committee finds that there has been an increased appreciation of the whole subject of industrial hygiene: that the environment and conditions of employment of the worker are vastly better than they were, although there is still much need for further improvement. This development is attributed to three causes: the adoption of the recommendations contained in previous reports of the committee; the establishment of a health and welfare section under the Ministry of Munitions, and the increased powers for securing the welfare of workers conferred on the home office. Regarding the relation of fatigue and ill health to industrial efficiency, the report says, "Without health there is no energy; without energy there is no output. More important than output is the vigor, strength and vitality of the nation. The conditions essential to the maintenance of health are, first, personal conditions favorable to the body itself (e. g., food, fresh air, exercise, warmth and adequate rest, and, secondly, a satisfactory environment, including sanitary factories, suitable hours of work, good housing accommodation and convenient means of transit."

Regarding the industrial employment of women, which has greatly increased during the war, the committee finds that up to the present there has been no marked breakdown in the health of women in industry. As to hours of labor, the scientific data collected and the experience gained during the past two years show that the length of hours recommended in January, 1916, namely, thirteen to fourteen hours a day, are too long and can be reduced without loss of output; that by economizing time the hourly output can be increased, and that the time is now ripe for further substantial reduction in working hours. Sunday labor is unpopular, uneconomical, and not productive of increased output. Night work is uneconomical owing to higher wages, inferior heating and lighting and more difficult supervision. Lost time is due to many causes, as sickness, accidents, bad housing, poor transportation and bad weather. The proportion of lost time due to sickness is greatly underestimated. Any sound system for dealing with industrial disease must be aimed at prevention, and the treatment must deal with the beginnings of the disease. The committee finds that a large number of industrial accidents are preventable and that it is to the interest of all parties that they should be reduced to a minimum. Cleanliness in factories is essential, not only for health, but also on account of its bearing on the self-respect of the worker. Regarding welfare work in industry, the committee feels that the time has not yet come when a definite judgment can be passed, nor is it possible to prophesy its future lines of development. The confidence and support of the workers has yet to be obtained. The report contains a large amount of detail material, charts, photographs, tables, etc., on all the problems that have arisen in the munition factories during the time of the war.

THE CONTROL OF INFECTIOUS DISEASES IN THE DURAND HOSPITAL

What may be accomplished by a careful control of infectious diseases is brought out in the recent report, by Dr. George H. Weaver, on the work of the Durand Hospital of the John McCormick Institute for Infectious Diseases, Chicago, covering the first five years of its existence. The hospital is conducted for poor patients. During the five years, 2,817 patients were admitted, the service being largely devoted to diphtheria, measles, scarlet fever, poliomyelitis and epidemic meningitis. However, a large number of other infections are listed in the table of diagnoses.

One of the great dangers of hospital care of infectious disease is cross—or double—infections. During the five years, there were twenty-three cases of such infections in the hospital, or 0.8 per cent. of the admissions. Eight of these cases were traced to exposure in isolation rooms on entrance, and could have been avoided if each patient had been individually isolated. The record, however, is excellent, since another large infectious disease hospital, also conducted on aseptic technic, shows an existence of cross infection varying from 1.1 to 4.6 per cent. In an effort to prevent secondary infections entirely, each patient is isolated in a separate room until the incubation period for extramural infection has passed. Such procedure is necessarily expensive, but the cost is offset by the shorter time of hospital care and by the elimination of severe—and sometimes fatal—results that follow double infections.

During the five years, 802 patients with diphtheria were treated. There was a mortality of ninety-three cases, or 11.6 per cent. Excluding patients who died within twenty-four hours after entrance, the rate is 5.6 per cent. This difference is an indication of the importance of early administration of diphtheria antitoxin. Seventy-two patients, or 9 per cent., developed secondary paralysis. The average amount of antitoxin given in a single case was 22,000 units. This was usually injected intramuscularly, but in a few serious cases directly into a vein. Severe shock sometimes observed after intravenous injections has led the hospital to abandon this method except for very urgent cases.

The experience of the hospital with diphtheria carriers has been described in various publications. After a study of numerous methods, it has been found (as reported by Friedberg) that the removal of the tonsils is practically always followed by prompt disappearance of the bacilli.

Apparently the conditions in the diseased tonsils prevent not only the action of antiseptics and other substances but also the ready entrance of antibodies from the blood.

Of 164 patients with measles, eleven died, or 6.7 per cent. In the differential diagnosis from German measles and scarlet fever, it has been found that the examination of throat smear is of value because the bacterial pictures are quite characteristic in each disease.

Of 1,305 patients with scarlet fever treated in the hospital, fifty-six died, a death rate of 4.3 per cent. This figure is slightly below that recorded for 850 cases in the Alexandria Hospital of Montreal with a mortality of 8 per cent., or 1,529 cases in the Providence City Hospital, with a rate of 5.1 per cent. Nephritis was present in 150 cases, or 11.4 per cent., this including only cases which exhibited microscopic evidence of nephritis. Polyarthritis, nonsuppurative in character, occurred in 158 patients, or 12.1 per cent. Otitis media was found 220 times, or in 16.8 per cent.; mastoiditis fifteen times, or 1.1 per cent. The experience in the cases of mastoiditis has further impressed the conclusion that it is dangerous to wait for spontaneous cure, and that an early operation offers the only opportunity for avoiding extensive local destruction of tissues and general septic infection. Appendicitis developed as a secondary complication in four cases.

In a study of the development of infections among nurses and attendants, it was found that certain infections must be attributed to mouth spray. For this reason, gauze masks were first employed in the hospital and have been continuously employed since June 1, 1916. It is encouraging to note that good results have been achieved in the protection of nurses and attendants by this method.

Medicolegal

Pregnancy and Good Health

(National Council of the Knights and Ladies of Security v. Glenn (Fla.), 80 So. R. 516)

The Supreme Court of Florida, in affirming a judgment in favor of plaintiff Glenn, on a beneficiary certificate issued by the defendant to his wife, holds that pregnancy is not a personal ailment or condition of bad or unsound health, so as to violate an agreement or stipulation that a member of a beneficiary society shall not be reinstated after suspension for nonpayment of dues, unless such member is in good health at the time of the reinstatement. The court holds further that a plea that the insured was "not in good health" at the time of her reinstatement was too vague and indefinite, and that the defendant might be required to set forth definitely and specifically in what respect the insured was not in good health, and the nature of her ill health.

Physician Not Liable for Testifying as to Insanity

(Corcoran v. Jerrel (Iowa), 170 N. W. R. 776)

The Supreme Court of Iowa, in affirming a judgment that was rendered on a directed verdict in favor of the defendant, a physician, who was sued for damages for alleged libel, says that a brother of the plaintiff caused an information, addressed to the commissioners of insanity, to be filed in the office of the clerk of the district court, alleging that the plaintiff was insane and a fit subject for custody and treatment in the state hospital. A warrant was issued and delivered to the sheriff of the county commanding him to take her into custody, and bring her before the commissioners. The return of the sheriff was not dated but certified that he took the plaintiff into custody. She was not, however, taken before the commissioners. The defendant, who had been previously employed as her physician, was subpenaed, sworn, and examined on the trial before the commissioners. His testimony was reduced to writing and signed by him. He testified that, in his judgment, the plaintiff was insane and should be sent to the hospital for proper care and treatment. All the foregoing proceedings were had on the day the information was filed. On the following day the plaintiff was taken by the sheriff to the hospital at Mount Pleasant, where she was confined for a period of about five months, when she was paroled to her mother, and later she was discharged as cured.

The plaintiff in her petition in this case demanded damages in a large sum, alleging that the statements uttered and signed by the defendant before the commissioners were false, malicious and libelous. The principal defense relied on by counsel for the defendant was that the statements complained of were made by the defendant as a witness under oath on the trial, and therefore privileged. The plaintiff sought to avoid the plea of privilege on the ground that no notice was served on her of the proceedings before the commissioners, and that they were wholly void. But the Iowa statute does not require notice of the filing of an information alleging insanity, or of trial thereon, to be served on the person whose sanity is to be investigated. Section 2265 of the code provides that the accused shall be taken before the commissioners, unless they shall be of the opinion that to do so would probably be injurious, or attended with no advantage to the person alleged to be insane, in which case the hearing may be conducted without his presence. Any citizen of the county or relative of the person alleged to be insane may appear and resist the application in person or by counsel. Provision is also made for an appeal, as well as that all persons confined as insane shall be entitled to the benefit of a writ of habeas corpus, and that the question of insanity shall be decided at the hearing thereon. The record did not disclose an affirmative finding by the board that the condition of the plaintiff was such that it would be injurious for her to be present at the trial, or that this would not be of advantage to her, but presumptively such was the judgment and finding of the commissioners.

There was nothing in the record to indicate that the defendant was actuated by improper motives, or that he acted in bad faith toward the plaintiff. He was subpenaed, sworn, and examined as a witness, and his testimony was corroborated by that of other witnesses. Whether an action for libel could be maintained against him, if the proceedings had been for some reason invalid, the court need not determine, as that question was not before the court. The proceedings before the commissioners were, so far as the record disclosed, in all respects regular and valid, and all of the statements made by the defendant were clearly privileged.

Husband Communicating Venereal Disease to Wife

(Holmes v. Holmes (Iowa), 170 N. W. R. 793)

The Supreme Court of Iowa, in affirming a decree granting the plaintiff a divorce for alleged cruel and inhuman treatment by the defendant in communicating gonorrhea to the plaintiff, his wife, says that the authorities are uniform that an act such as was complained of here, if proved, constitutes cruel and inhuman treatment, under the statute, such as justifies the granting of a divorce. The holding is that the communication by a husband of a venereal disease to his wife, knowingly, is good and sufficient cause for a divorce, and is cruelty of the most flagrant kind. However, the mere fact that the wife is found infected with this disease after marriage is not in itself sufficient to justify the court in granting a divorce. In *Holthoefer* v. *Holthoefer,* reported in 47 Mich. 260, 643, 11 N. W. 150, it is said, in substance, that the evidence from the physician and nurses attending disclosed that the complainant was afflicted with a venereal disease. No charge was made and no suspicion suggested against the chastity of the complainant. On the other hand, there was no evidence against the defendant except the single fact that his wife was found to be diseased. If it were impossible that a virtuous wife should contract such a disease otherwise than from the husband, perhaps the facts already stated should, under the circumstances, be sufficient proof of his guilt. But it was conceded that the wife may innocently acquire the disease in other ways, and the wife's case must be supported by negative testimony that she was not in any manner exposed.

Society Proceedings

COMING MEETINGS

American Assn. of Electro-Therap. & Radiol., Philadelphia, Sept. 9-12.
Am. Assn. of Obstetricians and Gynecologists, Cincinnati, Sept. 15-17.
American Roentgen Ray Society, Saratoga Springs, Sept. 3-6.
Colorado Cong. of Ophth. and Oto-Laryn., Denver, August 4-5.
Indiana State Medical Assn., Indianapolis, Sept. 24-26.
Medical Society of the Missouri Valley, Des Moines, Sept. 18-19.
Pennsylvania State Medical Society, Harrisburg, Sept. 22-25.
Utah State Medical Association, Salt Lake City, Sept. 9-10.
Washington State Medical Association, Spokane, Sept. 11-13.
Wyoming State Medical Society, Thermopolis, Sept. 10-11.

AMERICAN ASSOCIATION OF ANESTHETISTS

Seventh Annual meeting, held at Atlantic City, N. J., June 9-10, 1919

The President, DR. WILLIAM B. HOWELL, in the Chair

The Acid Base Regulatory Mechanism During Anesthesia

DR. S. P. REIMANN, Philadelphia: In anesthesia there results a compensated acidosis in from 30 to 85 per cent. and an uncompensated acidosis in from 15 to 20 per cent. of routine operative cases. The reduction in the bicarbonate, which has been found to occur after anesthesia and operation, in our studies, averaged from 5 to 15 c.c. of carbon dioxid per hundred cubic centimeters of plasma. This decrease, in the majority of cases, does not approach the limit of compensated acidosis. It now seems thoroughly established that the sum total of ketone bodies in both the urine and the blood after anesthesia and operation practically determine the amount of alkali which has been withdrawn from the available quantity in the body. The protection of the patient from acidosis rests in limiting suboxidation and in supplying the body with alkali. Further studies have confirmed that the ammonia and titrable acidity of the urine are increased after anesthesia. These acids are neutralized, as they are formed by sodium bicarbonate and ammonia and also by other available but less easily mobilized bases, such as calcium and magnesium. The salts of the acids are then excreted and thus eliminated from the body. The symptoms which acidosis will produce vary in intensity from headache, nausea, and vomiting, gas pains and mental dulness, to coma and death. Clinically, acidosis plays an important part in unfavorable postoperative symptomatology. The following factors were found to influence uncompensated acidosis: extreme age, impaired kidney function, exhausting diseases, prolonged sepsis, duration and depth of anesthesia, hemorrhage and preoperative fasting. The condition of shock is always associated with uncompensated acidosis. It is important, clinically, to realize that patients who show a low alkali reserve before operation will always show a greater diminution after operation. In handling acidosis a patient, before operation, showing a bicarbonate content of 58 c.c. or less should be given the benefit of alkalization by means of sodium bicarbonate, although further studies may show the use of magnesium and calcium to be equally important. It must be remembered that too much alkali may do as much harm as excess acidity. Consequently a second analysis two hours after alkalization should be made to indicate whether the desired result has been effected.

Toxic Effect of General Anesthetics in Naturally Nephropathic Animals

DR. WILLIAM DE B. MACNIDER, Chapel Hill, N. C.: My experiments warrant the following conclusions: (1) The use of an anesthetic is associated with a reduction in the alkali reserve of the blood, which is very marked in naturally nephrophatic animals; and (2) a decrease in kidney function; and (3) that if the alkali reserve of the blood during an anesthetic can be kept above 7.9, the animals not only remain diuretic, but also responsive to various diuretic solutions. Histologically the animals with marked reduction of alkali reserve, anuria and nonresponse to diuretics show a severe swelling and necrosis of the tubular epithelium, especially that of the convoluted tubules, and the occurrence of large amounts of fat in the tubular epithelium, especially that of the ascending limb of Henle's loop.

A Simple Method of Administering Ether with Oxygen, and Its Advantages

DR. JOSEPH E. LUMBARD, New York: In this method the oxygen from a low pressure tank is sent through the ether container to a special facemask, covered with gauze and a rubber dam, with an air vent left on which induction by the drop method of ether or ethyl chlorid may be carried out. The oxygen may be sent through the vapor devices of Gwathmey, Lumbard and others to secure dosimetric control, but the simpler method suffices for all routine operations, even in the largest hospitals. Of all methods it gives the operator the utmost relaxation and deepest surgical anesthesia consistent with the safety of the patient, and a rapid and uncomplicated postanesthetic recovery. With proper accessories, the technic may be used for oral, nasal or endopharyngeal anesthesia, in which methods the use of oxygen is especially advantageous when the operative puncture is apt to embarrass respiration.

Influence of Age in Surgical Prognosis

DR. ALBERT H. MILLER, Providence, R. I.: A study of 1,000 case records, classified as good, fair or poor risks, was made to establish the degree of danger attending operations on the aged. All patients recorded as good risks are expected to recover. Fair risks are operated on with less assurance, and major procedures are performed only when urgently required. In hazardous risks a high mortality rate is rather expected. The mortality rate in the cases of 271 patients over 50 years of age is eight times as great as in 729 persons less than 50 years of age.

(To be continued)

AMERICAN SURGICAL ASSOCIATION

Fortieth Annual Meeting, held at Atlantic City, N. J., June 16-18, 1919

(Concluded from page 294)

Surgical Problems in Reconstruction of Peripheral Nerve Injuries

DR. CHARLES H. FRAZIER, Philadelphia: In our treatment of 550 cases at General Hospital No. 11, the proportion of cases in which operation was justifiable was 30 per cent. I observed the rule not to operate until three months after the wound had healed. In many instances, six months would elapse before the operation was undertaken. The great problem of peripheral nerve surgery is the bridging of defects after resection. Discarding as unworthy of consideration the flap method, tubulization, lateral anastomosis and suture distance, the surgeon must turn to nerve-stretching, nerve transposition, the position of the limb, the nerve transplant, and an operation for which I have coined the term "implantation suture." The latter is applicable in the arm, where a healthy nerve may lie in juxtaposition to the injured nerve, and differs from lateral anastomosis in that a portion of the healthy nerve is sacrificed. Tendon transplantation should be held in reserve for certain residual palsies, notably those of the fingers in musculospiral palsies and those of the feet in external popliteal palsies (foot drop).

Foreign Bodies in Stomach

DR. RANDOLPH WINSLOW, Baltimore: Multiple objects are swallowed either by the insane or by mountebanks. Practically all of these individuals come to operation sooner or later. I removed 1,290 different objects from the stomach of an insane woman. This, I believe, is the largest number of individual articles reported in the literature as having been removed successfully from the stomach of a living human being. The woman made an uneventful recovery. While many single objects pass through the intestinal canal and are safely extruded, multiple foreign bodies usually lodge in the stomach and require to be removed by gastrotomy. This operation is a comparatively safe one and the percentage of recoveries is very high, even when the foreign bodies have remained in the stomach a long time.

DISCUSSION

Dr. S. J. Mixter, Boston: In a case seen in the operating room some time ago with a lump just above the umbilicus having the appearance of an abscess, incision revealed a quantity of yellowish pus which proved to be actinomycosis. The case was the first, I think, recognized in Boston as human actinomycosis. In this abscess were two large fish bones.

Dr. Willy Meyer, New York: Some years ago, before the advent of the roentgen ray, I was called to operate for what seemed to be a gastric condition. I found a large knitting needle sticking out of the stomach.

Operative Treatment of Peptic Ulcer

Dr. John B. Deaver, Philadelphia: Other things being equal, excision of the ulcer or resection followed by gastro-enterostomy is the procedure of choice. Gastro-enterostomy of itself is a curative measure for a time, but to insure a positive result the ulcer must be removed. It has been my experience that a gastro-enterostomy properly made and properly placed, with a patulous pylorus, does not close. Resection plus gastro-enterostomy presents the same advantages as the less complete operation, with the added benefit of a direct attack on the ulcer. The proper time for medical treatment for the results of chronic indurated peptic ulcer is after and not before the operation, if treatment is then still needed. Carcinomatous degeneration of gastric ulcer is a menace which cannot be ignored. Probably nowhere does the personal equation of the operator enter more than in the operative treatment of peptic ulcers. In ulcer distant to the pylorus with very little exudative induration, simple excision may suffice. This applies also to saddle-back ulcers and those situated on the lesser curvature toward the cardia, for which circular resection is the indicated operation. From my experience on two occasions, I am becoming convinced of the advantage of following circular resection with a gastro-enterostomy. For perforation of a duodenal ulcer, I find it best after closing the perforation to plicate the duodenum and fortify the area by covering it over with the gastrocolic and the gastrohepatic omentum and complete the operation with a posterior gastro-enterostomy.

Cancer of Stomach

Dr. Charles H. Mayo, Rochester, Minn.: More than one third of the cancers in men and more than one fifth of the cancers in women appear in the stomach. From Oct. 1, 1897, to Jan. 1, 1919, 2,094 operations for cancer of the stomach were performed at the clinic. Seven hundred and thirty-six of these were resections, with a mortality of 13.7 per cent.; 746 were explorations with a mortality of 2.9 per cent., and 612 were palliative operations with a mortality of 11.1 per cent. For the last three years the anterior instead of the posterior Polya operation has been done in the clinic. Better after-results seem to be obtained by turning the bowel to the right, isoperistaltic, by closing the end of the stomach in toward the lesser curvative, and protecting the closed portion by suturing the unopened bowel over it.

DISCUSSION

Dr. Arthur D. Bevan, Chicago: I am convinced that the great majority of gastric and duodenal ulcer patients can be cured medically and can be kept cured under proper after-treatment. With the opportunity of studying a large series of cases, surprising results of surgical management will be seen in recurrences after gastro-enterostomy for ulcer. I believe, however, that most medical men push the matter of medical therapy too far. An ulcer persisting after proper medical treatment is a surgical matter. The treatment of cancer of the stomach is as definitely surgical as is carcinoma of the breast. Within the last month I have resected three stomachs in which there was very early carcinoma. Carcinoma of the stomach is one of the most curable carcinomas in the body if it is early recognized.

Dr. Frank E. Bunts, Cleveland: The curative result of a gastro-enterostomy is not to be measured by the immediate result of the operation, but such cases demand the most careful attention following the operation that can be given by the best medical men.

Abscess of Rectus Muscle Following Influenza

Dr. Homer Gage, Worcester, Mass.: Next to empyema, the principal complication of surgical interest in the influenza epidemic at Camp Devens was a group of localized abscesses, most often periarticular and intramuscular, not involving the joints or any of the internal organs usually involved in metastatic processes. Of especial interest in this group were three cases of abscess of the rectus muscle.

They were first observed about a month after the onset of the pneumonia. Two patients had no other complication; a third had empyema and an abscess in the chest wall. Culturally all showed pneumococci, two Type I, one untyped. All patients recovered promptly after incision and drainage.

In the necropsy reports by Dr. S. Burt Wolbach, nine cases presented clearly defined Zenker degeneration of the rectus muscles with rupture of the muscle fibers and intramuscular hemorrhage. To a lesser degree the same process was observed in other muscles of the abdomen and in muscles of the chest. It seemed quite evident that these abscesses represented infected muscle hematomas and that the infection was blood borne. They presented themselves late in the disease, were not accompanied by manifestations of general sepsis, and were not readily diagnosed because unsuspected.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

July, 1919, **9**, No. 7

Narcotic Drug Addiction: Public Health Problem. E. S. Bishop, New York.—p. 481.
Narcotic Drug Addiction. C. E. Terry, New York.—p. 489.
Medical Aspects of High Cost of Living. L. I. Harris, New York.—p. 491.
*Lipovaccines, with Special Reference to Public Health Work. E. R. Whitmore, U. S. Army.—p. 504.
Avian Paratyphoid Bacilli. F. W. Muslow, Chicago.—p. 508.
Endemic Goiter as Public Health Problem. M. Tolman, Charleston, W. Va.—p. 511.
Prostitution and Community Syphilis. H. Goodman, New York.—p. 515.
Plans of Division of Industrial Hygiene. C. D. Selby, U. S. P. H. Service.—p. 521.

Lipovaccines for Immunization.—It is believed by Whitmore that the lipovaccines overcome some of the difficulties in the way of active immunization in public health work. The one great advantage of the lipovaccines is that the entire amount of vaccine can be given at one dose; and as the absorption is slow, the reaction is not marked, and the immunity response is at least as good as with saline vaccine. As the vaccine keeps for at least a year, it can be carried in stock for a reasonable time. Since it is possible to give a very large dose of bacteria in lipovaccine without severe reaction, it is possible to include two or more organisms in the single vaccine. While the lipovaccines have great advantage for use in proctective inoculation, it does not appear that they aré suited for use as therapeutic vaccines. In advising the use of lipovaccines, Whitmore says that it is necessary to guard against the danger of considering whether they allow of putting a large number of different organisms into one vaccine. One of the present dangers of bacterial vaccines is the tendency to include a large number of different organisms in one vaccine, without regard to whether there is any specific action on the part of such organisms. Whitmore discourages the use of "shotgun" vaccines, for the use of which there is no specific practical basis and for which the usual exouse is that they do no harm.

Archives of Internal Medicine, Chicago

July, 1919, **24**, No. 1

*Pneumonia and Complications at Camp Bowie. J. C. Greenway, New Haven, Conn.; C. Boettiger, New York, and H. S. Colwell, Worcester, Mass.—p. 1.
*Criterions for Distinguishing Endameba of Amebiasis from Other Organisms. Chas. A. Kofoid, Berkeley, Calif.; S. I. Kornhauser, Evanston, Ill., and O. Swezy, Berkeley, Calif.—p. 35.

*Irritable Heart in General Practice. S. Neuhof, New York.—p. 51.
*Duration of Normal Convalescence. E. W. Bridgman, Baltimore.—p. 65.
*Uric Acid Content of Blood Compared with Renal Dietary Test. L. Baumann, G. H. Hansmann, F. A. Stevens, and A. C. Davis, Iowa City.—p. 70.
*Clinical Evidence in Involvement of Suprarenals in Influenza and Influenzal Pneumonia. D. M. Cowie and P. W. Beaven, Ann Arbor, Mich.—p. 78.
*Auscultatory Phenomena of Heart in Normal Men and in Soldiers with Irritable Heart. J. T. King, Baltimore.—p. 89.
*Influenza and Neurosyphilis. K. A. Menninger, Topeka, Kan.—p. 98.
Fever and Water Reserve of Body. J. O. Balcar, W. D. Sansum and R. T. Woodyatt, Chicago.—p. 116.

Pneumonia at Camp Bowie.—A large percentage of the 2,344 cases of pneumonia analyzed by Greenway and his associates followed an epidemic of influenza. Following the epidemic of measles, the predominance of hemolytic streptococcus as the infecting organism determined the high mortality and the high incidence of complications, especially empyema. Following the epidemic of influenza the incidence of hemolytic streptococcus was less, but when present the lesions produced did not vary from those present in cases of the year previous. In addition to the streptococcus infections there was a large group of cases of mixed bacteriology with pneumococcus, especially Group 4 predominating. Definite evidence of the presence of *B. influenzae* as a determining factor in pneumonias following the epidemic of 1918 was not obtained. Postmortem studies showed that the pneumococcus is constantly present in lobar pneumonia, while the hemolytic streptococcus, with a variety of other organisms, and the pneumococcus was found in the bronchopneumonia cases. Comparison of sputum examinations with more accurate bacteriologic data from the same cases, has shown correspondence in a large percentage of cases. Clinical differentiation between lobar pneumonia and bronchopneumonia to accord with postmortem findings has been impossible. For this reason it is suggested by the authors that the term acute pneumonitis, followed by a statement of the predominating organism in the sputum, be used to designate those cases of pneumonia which are not frankly lobar in type, but caused by one of the fixed types of pneumococcus. The incidence of empyema was highest among the pneumonias following measles. For the entire period, cases complicated with empyema constituted 10.6 per cent. of the total pneumonia deaths. The appearance of the pleural exudate caused by *Streptococcus hemolyticus* was characteristic. Repeated aspiration of such fluids, followed by operation after the acute pneumonitis had subsided, has given the more satisfactory results. The occurrence of encapsulated pus was very common, especially in the streptococcus infections. These pockets were frequently multiple and offered great difficulties from an operative standpoint.

Differentiation of Endameba of Amebiasis.—The point is emphasized by the authors that repeated successive examinations are essential to establish an adequate diagnosis and that flagellate infections are most readily detected in fluid stools after a saline purge, whereas the encysted phases of these and of the endamebas are more readily found in the formed stools of infected persons. The intermittent or rhythmic appearance of the encysted phases of the intestinal protozoa necessitates these repeated examinations to detect infections. Three successive examinations at intervals of several weeks are desirable in critical cases. All tests of cure after treatment should rest only on several repeated series of examinations to be conclusive.

Irritable Heart in General Practice.—According to Neuhof the irritable heart as observed in general practice is similar to that found in soldiers. Vasomotor symptoms are more pronounced in the former. The etiologic factors are similar, but because of training and war conditions, dormant and latent neuroses crop out oftener and are more readily evoked, consequently the cardiac syndrome is more violent and lasts longer. Infection is a factor only in so far as it induces and produces nerve and muscular fatigue and psychasthenia. There is no pathologic change in the cardiovascular system. The fundamental cause of the cardiac neurosis with its various manifestations seems to be due to hyperexcitation of the sympathetic nervous system.

Duration of Normal Convalescence.—Bridgman claims that he has made the first direct attempt to employ actual physical tests for the determination of the optimum period of convalescence, and that the periods determined seem so much longer than are generally employed.

Blood Uric Acid and Diet.—Baumann and his associates have carried out during the past three years about 180 renal dietary tests and blood analyses. Of 100 cases showing moderate and slight abnormality, respectively, all showed renal involvement from the clinical point of view. Sixty per cent. had an abnormality in the dietary test, while 74 per cent. showed an increased concentration of uric acid in the blood. It follows from this that the uric acid concentration of the blood is a delicate, if not the most delicate, index of renal function. An abnormal dietary test with normal blood findings was found in 8 per cent. of the cases. An abnormally high urea with a normal uric acid concentration was encountered in only six instances. The advantages of the bland diet are that it is easily prepared, and that it may be used where a high protein diet is undesirable or where digestive disturbances are present.

Suprarenals in Influenza.—The possible existence of disturbed function of the suprarenal glands as a cause of the asthenia present in all cases of influenza during the course of the disease and during convalescence led Cowie and Beaven to make an experimental investigation. The most common and the most marked symptom of suprarenal insufficiency is asthenia (prostration). Low blood pressure, another cardinal symptom of suprarenal insufficiency, has been commonly observed by clinicians as being characteristic of influenza and influenzal pneumonia. The authors endeavored to determine, on purely clinical grounds, if possible, whether a hypo-adremia or a disturbance of the chromaffin system could be shown to be at the bottom of the symptom group so much in the foreground of this disease. Necropsy revealed hypoplasia of the suprarenals and evidence of suprarenal dysfunction. The occurrence of suprarenal dysfunction in influenza and influenzal pneumonia may be regarded as indicated by the cardinal symptoms, the characteristic rise in blood pressure following the prolonged administration of epinephrin, and the prolonged blood pressure curve following the administration of epinephrin. That an endocrinal disturbance is present in influenza and influenzal pneumonia is further suggested by prolonged blood sugar curve after injection of epinephrin. Hypoglycemia is not present in influenza and influenzal pneumonia as has been found to be the case in some diseases of endocrinal origin. However, therapeutic tests showed that if epinephrin is of any use in the treatment of symptoms of suprarenal dysfunction, the proper method of administering the epinephrin seems not yet to have been found.

Auscultatory Phenomena of Normal Heart.—A report is made by King of the various adventitious sounds and murmurs found in the examination of hearts of 500 supposedly healthy soldiers who had done army duty. A few unusual murmurs and sounds found in the examination of almost 1,500 supposedly healthy soldiers are recorded. King concludes that murmurs and adventitious heart sounds probably have only an accidental relationship to the "irritable heart of soldiers."

Influenza and Neurosyphilis.—The interrelation of coincident infections was studied by Menninger from the data presented by cases of neurosyphilis affected by attacks of influenza. Cases are cited to illustrate three effects of influenza on neurosyphilis: The precipitation of profound symptoms in previously latent neurosyphilis by influenza; the augmentation of symptoms and signs of neurosyphilis by influenza; the absence of palpable effect of influenza on the neurosyphilitic process. The latent, incipient, and early cases of neurosyphilis seem to be susceptible to precipitation or augmentation by the added neurotoxic effects of influenza; the advanced cases are not usually perceptibly altered in symptomatology or course. No instances of improvement of neurosyphilis following influenza were observed by Menninger. The scanty literature is collected and epitomized.

Archives of Neurology and Psychiatry, Chicago

July 1, 1919, **2**, No. 1

*Histopathologic Study on Two Cases of "Central Neuritis"; New Granule ("Nucleoproteid-Like Granule") in the Neuroglia Cells. K. Marui, Sendai, Japan.—p. 1.
*Histopathology of Epidemic ("Lethargic") Encephalitis. P. Bassoe and G. B. Hassin, Chicago.—p. 24.
*General Paralysis Treated by Intraventricular Injection of Arsphenamin. I. J. Sands, Brooklyn.—p. 41.
Congenital Tumor of Brain (Telangiectasis) and Associated Cerebral Movements. W. G. Spiller, Philadelphia.—p. 50.
*Treatment of Neurosyphilis by Arsphenamin Intravenously and Auto-Arsphenamized Serum Intraspinally. G. M. Goodwin, New York. —p. 58.
*Pernicious Anemia with Mental Symptoms. L. A. Lurie, Cincinnati. —p. 67.

Central Neuritis.—A thorough histopathologic study in two cases of "central neuritis," and many other cases were made by Marui. Almost all the Betz cells in both cases and some cells of the spinal cord of the first case showed the typical axonal reaction; in the first case the fever alteration was superimposed on this picture. Fragmentation of the intracellular neurofibrile was found in the glassy area. The alteration of neurofibrils keeps pace with the dissolution of the Nissl bodies. Besides Marchi degeneration of myelin sheaths, a very interesting picture of axis cylinders was disclosed. Ameboid glia cells showed the Alzheimer fuchsinophil granule, a finding which indicates an increased scavenger activity of the neuroglia tissue. In two cases of central neuritis and many other cases in ameboid and preameboid glia cells, on the one hand, and in case of hemorrhage in granule cells on the other hand, a new "nucleoproteid-like granule" was demonstrated. The author concludes that neuroglia has a constructive function besides a scavenger function, and that this granule is given the neurologia cells in an afferent direction.

Epidemic Encephalitis.—The pathologic changes in epidemic (lethargic) encephalitis found by Bassoe and Hassin involve the entire central nervous system. These changes are both parenchymatous and interstitial. The former principally involve the cortex, the latter the peduncles, internal capsule, lower pons, bulb and cord. In the basal ganglia and midbrain both parenchymatous and interstitial changes are pronounced. In its histopathology epidemic (lethargic) encephalitis differs from the various types of hemorrhagic encephalitis, but it is identical with that of African sleeping sickness (trypanosomiasis). It differs from typical cases of paralytic dementia by the topography of the lesions and by absence of vascular wall changes, which probably are due to the more chronic course of the latter. It also differs from the various types of traumatic and experimental encephalitis and from acute anterior poliomyelitis. It is pathologically a distinct morbid entity, a disease *sui generis*, and does not resemble the conditions previously described as influenzal encephalitis. The similarity between the pathologic changes in African sleeping sickness and epidemic encephalitis suggests a close relationship of their etiologic factors, that is, the epidemic encephalitis may be caused by a parasite akin to a trypanosome.

General Paralysis Treated by Intraventricular Injection of Arsphenamin.—Sands claims that this is the first case which has received this form of therapy and has been studied clinically as well as at the postmortem. The patient was a man, aged 40, who had one living child, a negative family history, but an alcoholic personal history, who had no knowledge of any venereal disease. He began to show lapses of memory in December, 1915, which increased in severity so that he was obliged to discontinue his work in the middle of 1916; he then became irritable, showed speech defect and became ataxic; in March, 1917, he received one intraventricular injection of arsphenamin through a trephined opening in the skull. May, 1917, he showed disorientation, poor memory, expressed grandiose ideas; showed marked speech defect, pupils were unequal and reacted very sluggishly to light, and the spinal fluid showed positive globulin, fifty-four cells, and a positive Wassermann reaction. He soon began to soil himself, became very euphoric and died following a convulsion. The postmortem examination showed the characteristic lesions of general paralysis in the brain; namely, a thickened pia showing a characteristic milky exudate in the anterior two thirds, atrophy of the anterior poles of the cortex, lymphoid and plasma cells infiltration into the pia, neuroglia increases, cortical disorganization and perivascular exudation of lymphoid and plasma cells, many mast cells and a few rod cells, granulations on the floor of the ventricles, syphilitic aortitis and bilateral bronchopneumonia and pulmonary edema; the lesions in the left side of the brain which received the arsphenamin were more intense than those on the right side.

Treatment of Neurosyphilis by Arsphenamin Intravenously and Auto-Arsphenamized Serum Intraspinally.—In this series of twenty-one cases, 214 intraspinal treatments were given by Goodwin and Scott. Severe reactions have occurred, but no permanent injury or ill effects resulted from the intraspinal use of auto-arsphenamized serum. The treatment has uniformly been of benefit in its effect of increasing the patients' comfort by lessening the severity and frequence of their pains, in frequently improving bladder control, and in improving their nutrition. Improvement in station and in gait has frequently been observed in these cases, and in some, to a very marked extent.

Pernicious Anemia.—In speaking of the neuropathology of pernicious anemia, Lurie says it is not sufficient merely to describe the lesions found in the spinal cord. The brain changes are too numerous and definite to be omitted. The neuropathology of pernicious anemia should include the entire central nervous system. He records the findings in four cases.

Boletín de la Asoc. Méd. de Puerto Rico, San Juan

June, 1919, **13**, No. 123

Marriage from Medical Standpoint. F. del Valle Atiles.—p. 1.
*Prevention of Prostitution. F. del Valle Atiles.—p. 3.
*Meningococcus Infection. P. Gutiérrez Igaravidez.—p. 25.
*Epinephrin in Typhoid in the Tropics. J. Barreiro.—p. 38.
*Ulcerating Granuloma of Genital Organs. S. Guiliani.—p. 53.
*Blunders in Diagnosis. A. Marotinez Alvárez.—p. 55.

Prostitution from Sociological Standpoint.—Atiles reports the detailed study of the reasons for taking to prostitution in 168 cases, and compares his findings with those that have been published by others. Nearly 5 per cent. of the women were of illegitimate birth, and only eighteen of the total 168 were able to read and write, although some of the others had attended school. His conclusions confirm those of others in regard to prophylaxis of prostitution as inevitably connected with uplift movements in general, economic, educative, biologic and legislative.

Epidemic Meningitis.—Igaravidez reports four cases of epidemic meningitis. He claims that the first case mentioned was the first instance of the disease known in Porto Rico, and that the case was published in The Journal A. M. A., Dec. 21, 1918, under the title "Early Diagnosis of Cerebrospinal Meningitis by Examination of Stained Blood Films." Two of the patients were children, and the others were women, one the mother of the second child. The last three cases all occurred in May, 1919. The infection was of such a fulminating type in two of the cases that death occurred before the meningitis had had time to develop. In all the cases meningococcus sepsis was evidently responsible for the fatal termination. The diagnosis was made in each case from the blood films, and he urges examination of blood from a finger tip as an early routine measure, making from four to six slides and taking the blood count. The discovery of the meningococcus in the blood may render it possible to give the antiserum in time to ward off the invasion of the meninges. He mentions Laveran's statement that cerebrospinal meningitis is a winter disease, dying out in the summer, and that its range is from latitude 60 N. to 36 S.

Epinephrin in Typhoid.—Barreiro says he has only twenty odd cases to report, but the benefit from epinephrin treatment was so great that he does not wait for further experience before proclaiming the advantages of suprarenal treatment in typhoid in the tropics. The benefit from epinephrin in the exhaustion of the soldiers in the trenches was mentioned early in the war, and he was impressed with the similarity between the conditions as described in this war

exhaustion from overwork and the exhaustion of patients early in typhoid. This suggested suprarenal treatment in typhoid, as the patients are often in an exhausted condition from the cares and work of business or from late hours and dissipation. He adds that the food in the tropics is too often defective and inappropriate, so that dyspepsia and liver disease are more prevalent in Porto Rico than among the soldiers in the trenches, as the diet of the latter was more rational than is the custom in the tropics. The perpetual summer climate promotes intestinal fermentations and autointoxication. The suprarenals soon become unequal to their task, as is evident from the intense weakness and low blood pressure early in typhoid. The theoretical indication to supply the lacking suprarenal element was abundantly confirmed by the prompt improvement under suprarenal treatment. In a day or two the benefit was plainly evident, the patient feeling stronger, replying lucidly to questions, and the amount of urine increasing while it grew more normal in appearance. It was an actual resurrection in some cases by the second day after 3 drops of the 1:1,000 epinephrin had been given by the mouth in a glass of water, twice a day. The improved muscle tone was particularly evident in the tongue which at first was not under control at all. The epinephrin was continued until defervescence in one case described in detail. After suspension for four days, the pulse ran up to 120. An immediate injection of 0.5 c.c. of the epinephrin solution corrected this, and convalescence continued without further mishap. In another case the fever kept up for thirty-three days, but the epinephrin tided the patient along into convalescence. There was no tendency to intestinal hemorrhage in any of the patients given the epinephrin. Another feature of epinephrin treatment is that the stools lose their diarrheic character; the epinephrin passing through the alimentary canal seems to induce vasoconstriction and thus checks the tendency to diarrhea and averts danger of hemorrhage. Since he began this routine use of epinephrin in tropical typoid he has not lost a case.

Ulcerative Granuloma of Genital Organs.—Guiliani reports the first two cases in Porto Rico in which *Bacterium granulomatosis* has been cultivated from a granulomatous lesion on the genital organs. He adds that these lesions in the past may have been mistaken for syphilis or cancer.

Blunders in Diagnosis.—As already mentioned in THE JOURNAL, April 26, p. 1253, Alvarez is inaugurating a series of confessions of blunders in medical practice. He opens the series himself and relates three rather mortifying experiences from his earliest year of practice, although none were exactly blunders.

Boston Medical and Surgical Journal

July 17, 1919, **181**, No. 3

Psychic Manifestations Precursory to Mental Disease. A. H. Mountford and W. J. Vivian, Worcester, Mass.—p. 56.
*Blood Transfusion in War Surgery in British Army. E. G. Crabtree, Boston.—p. 60.
Occupational Therapy. H. T. Crane, Rutland, Mass.—p. 63.

Blood Transfusion in War Surgery.—Crabtree believes transfusion to be indicated in anemic cases, anemic from previous loss of blood, amputations, sepsis or a combination of these, which have open wounds which will require to heal by granulation; anemia, often seen in multiple wound cases when none of the wounds are severe, yet all are septic, is a well known war condition; postoperative hemorrhage in deep subsiding gas infected wounds, occurring days after the primary operation, has been the trial of the war nurse and surgeon alike.

California State Journal of Medicine, San Francisco

July, 1919, **17**, No. 7

Etiology of Influenza. K. F. Meyer, Berkeley, Calif.—p. 216.
Influenzal Pneumonia. H. P. Hill and G. E. Ebright, Berkeley, Calif.—p.224.
Methods Used in Control in Influenza. W. H. Kellog, Sacramento, Calif.—p. 228.
Clinical Features of Present Pandemic of Influenza as Compared with Pandemic of Thirty Years Ago. H. Lisser, San Francisco.—p. 231.
Treatment of Postinfluenzal Pneumonia in Army Hospital. W. W. Roblee, Riverside, Calif.—p. 236.
Pulmonary Conditions Wrongly Diagnosed as Tuberculosis. W. C. Voorsanger, San Francisco.—p. 238.

Canadian Medical Association Journal, Toronto

July, 1919, **9**, No. 7

*Albuminuria of Pregnancy. E. P. Davis, Philadelphia.—p. 593.
Focal Infection and Chronic Urticaria. H. MacKay, Winnipeg.—p. 603.
*Auricular Flutter and Treatment. J. Meakins, Montreal.—p. 606.
Diagnosis in Affections of Urinary Tract. H. E. Paul, Toronto.—p. 614.
Application of Morrison's Technic (Bipp) of Wound Treatment to Civil Surgery. F. N. Gurd, C. A. M. C.—p. 625.
Reconstruction of Circulation of Liver, Placenta and Lung in Health and Disease. L. Gross, Montreal.—p. 632.
Radical Cure of Hernia. A. B. Rankin, C. A. M. C.—p. 635.
Stricture of Esophagus in Child. E. M. Eberts, Montreal.—p. 630.
Congenital Malformation in Scrotum: Two Testes and Uterus in Right Portion of Scrotum. D. W. MacKenzie.—p. 641.

Albuminuria of Pregnancy.—According to Davis the treatment of an infant born of a toxemic mother is copious irrigation of the intestine, warmth, the free administration of water, predigested milk and thorough and frequent cleansing of the skin. The prognosis in these cases is doubtful or grave.

Auricular Flutter and Treatment.—Meakins emphasizes the frequency of auricular flutter, the importance of its recognition and the persistent treatment by digitalis under proper control until the normal rhythm is reestablished, or symptoms of digitalis poisoning develop necessitating the abandonment of the treatment.

Colorado Medicine, Denver

July, 1919, **16**, No. 7

Seminal Vesiculitis: Its Treatment. W. M. Spitzer, Denver.—p. 164.
Three Radical Deficiencies in Medical Curriculum: Climatology, Hydrology, Gymnastics. H. Sewall, Denver.—p. 168.
Absolute Rest in Treatment of Pulmonary Tuberculosis. S. W. Schaefer, Colorado Springs.—p. 174.
Necessary Cooperation in Natal Care and Obstetrics. F. H. Cary, Denver.—p. 180.

Florida Medical Association Journal, St. Augustine and Jacksonville

June, 1919, **5**, No. 12

Vital Statistics. S. G. Thompson, Jacksonville.—p. 247.
Trained Nurse in Relation to Public and Medical Profession. R. R. Kime, Lakeland, Fla.—p. 250.

Illinois Medical Journal, Chicago

July, 1919, **36**, No. 1

Acute Gangrenous or Perforative Suppurative Retrocecal Appendicitis. J. N. Jackson, Kansas City, Mo.—p. 1.
*Temperature Variations in Infancy and Early Childhood. I. A. Abt, Chicago.—p. 5.
Importance of Anaerobic Bacteria to Man. W. L. Holman, Pittsburgh.—p. 10.
Cyst of Thyroglossal Duct. O. T. Freer, Chicago.—p. 12.
Unwarranted Sacrifice of Tonsils, Especially in Children. H. M. Harrison, Quincy, Ill.—p. 14.
Simple and Accurate Technic of Foreign Body Localization. J. R. Buchbinder, Chicago.—p. 19.

Temperature Variations in Infancy and Early Childhood.—Abt lays emphasis on the fact that temperature observations in newly born and young infants have not only scientific interest but a clinical bearing. The proper interpretation of the temperature fluctuations in infants is of fundamental importance, but like other fundamental phenomena is rarely emphasized. The peculiar levels and irregular temperature curves in young infants should be recognized. Changes in temperature in infants have not necessarily the same significance as in adults. Sudden high temperatures in newly born infants are of frequent occurrence. Abt says that he has been able to follow many children through infancy and childhood who thrive and seem to be in perfect health and constantly show a temperature of 99 F., 99.5 F. and even 100.5 F.

Journal of Bacteriology, Baltimore

May, 1919, **4**, No. 3

Metabolism of Actinomycetes. S. A. Waksman, N. J.—p. 189.
*Rôle of Amino Acids in Metabolism of Bacillus Diphtheriæ. L. Davis and N. S. Ferry, Detroit.—p. 217.
Interpretation of B. Coli Test Results on Numerical and Comparative Basis. M. F. Stein.—p. 243.
Use of Nitrate Reduction Test in Characterizing Bacteria. H. J. Conn and R. S. Breed, Geneva, N. Y.—p. 267.

Water Supply for Syringe Bath. R. R. Mellon, Rochester, N. Y. p. 291.
Modification of Wright-Buchner Anaerobic Tube. R. R. Mellon, Rochester, N. Y.—p. 295.

Studies in Diphtheria Toxin.—Davis and Ferry were unable to cultivate *B. diphtheriae* in a synthetic medium composed of amino-acids and mineral salts adjusted to the optimum H-ion concentration. Addition of the extractives, creatin and creatinin and the purine bases, xanthin and hypoxanthin, was of no advantage. Typical luxuriant growth of *B. diphtheriae* was obtained in a mixture of 99.5 per cent. synthetic medium and only 0.5 per cent. of bouillon. Production of active toxin, however, required the presence of 10 per cent. bouillon. Cystin, when added to plain beef infusion, a culture medium just capable of maintaining growth of *B. diphtheriae*, not only permitted rapid and heavy vegetation, but a strong toxin (minimum lethal dose equals 0.0075 c.c.) was also elaborated. This appears to be a true toxin capable of neutralizing the corresponding diphtheria antitoxin. The results obtained favor the belief that diphtheria toxin is not a synthetic product, but rather a catabolic substance elaborated by *B. diphtheriae* only in presence of certain amino-acids and accessory factors, in the latter probably of a vitamin character.

Journal of General Physiology, Baltimore

July 20, 1919, **1**, No. 6

Intercellular Acidity in Valonia. W. J. Crozier, Urbana, Ill.—p. 581.
Control of Response to Shading in Branchae of Chromodoris. W. J. Crozier, Urbana, Ill.—p. 585.
*Iodin and the Thyroid. W. W. Swingle, Princeton, Mass.—p. 593.
Effect of Various Acids on Digestion of Proteins by Pepsin. J. H. Northrop, Baltimore.—p. 607.
Respiratory Rate of Sciatic Nerve of Frog in Rest and Activity. A. R. Moore, New Brunswick, N. J.—p. 613.
Growth of Higher Plants in Soils Free of Microorganisms. E. B. Fred, Madison, Wis.—p. 623.
Etching of Marble by Roots in Presence and Absence of Bacteria. E. B. Fred and A. R. C. Haas, Madison, Wis.—p. 631.
Inheritance of a Fluctuating Character. T. H. Morgan and C. B. Bridges, New York.—p. 639.
Vermilion Deficiency. C. R. Bridges, Washington.—p. 645.
Nature of Latent Period in Photic Response of Mya Arenaria. S. Hecht, Omaha.—p. 657.
Physiologic Basis of Morphologic Polarity in Regeneration. J. Loeb, Baltimore.—p. 687.
Influence of Electrolytes on Electrification and Rate of Diffusion of Water Through Collodion Membranes. J. Loeb, Baltimore.—p. 717.

Iodin and the Thyroid.—Swingle offers further evidence in support of the theory that the thyroid is an organ the function of which is the extraction from the circulation, storage and supplying to the organism, under the pressure of its needs, the small quantities of iodin taken into the body. The chief function of this gland, then, is the utilization of iodin taken into the body in small quantities.

Journal of Industrial Hygiene, New York

July, 1919, **1**, No. 3

*Problem of Ascertaining Actual Rise in Mortality Caused by Unhealthy Trades. A. D. Reiley, New York.—p. 109.
*Pathologic and Clinical Manifestations Following Inhalation of Dust. H. R. M. Landis, Philadelphia.—p. 117.
Methods for Study of Dust Contents of Air. H. F. Smith, Philadelphia.—p. 140.
*Back Strain; An Accident or a Disease? R. B. Osgood, Boston.—p. 150.
War Surgery and Industrial Surgery. J. J. Moorehead, U. S. Army.—p. 158.

Mortality from Unhealthy Trades.—From an analysis of all the data available Reiley concludes that the actual mortality from chronic lead poisoning is small, even making all possible allowance for dilution of exposures by lives not dangerously in contact with the poison. Painting is not so dangerous a trade as working directly in lead compounds, as occurs in white lead works, glaze rooms in potteries, smelting and refining works and storage battery plants. Miners' consumption ranks on a par with lead poisoning as the most dangerous disease. This disease is principally dangerous when the mining is done in silicious ores. In this, as in lead poisoning, the actual rise in mortality must be looked for from other immediate causes than miners' consumption, principally from tuberculosis and pneumonia.

Inhalation of Dust.—Landis points out that it is not always easy to differentiate between the fibrosis resulting from tuberculosis and pneumoconiosis and were it not for repeated negative sputum examinations, sometimes extending over a number of years, it would not be easy to say that tuberculosis was not present. The clinical history of pneumoconiosis is reviewed in detail.

Back Strain: Accident or Disease.—The question asked in the title is answered by Osgood in this way: either, or neither, or both. He says that unless the most careful examination is made, and unless the most accurate diagnostic methods are employed, physicians will continue to be puzzled by the persistence of the symptoms and patients will continue and often obtain osteopathic, chiropractic and nostrum relief. Forcible manipulation is not without danger nor is a back brace a panacea. The diagnosis of hysterical spine should rarely be made. The diagnosis of railroad spine means nothing. The diagnosis of functional spine is usually a confession of ignorance of the true cause of the trouble. Each case should be analyzed, and also a knowledge of the normal and the commonly symptomless variations is needed.

Kansas Medical Society Journal, Topeka

July, 1919, **19**, No. 7

Empyema. W. P. Callahan, Wichita, Kan.—p. 149.
Nonsurgical and Surgical Treatment of Prostatic Obstruction of Bladder. L. O. Nordstrom, Salina, Kan.—p. 152.
Fractures of Femur. R. C. Lowman, Kansas City, Mo.—p. 154.

Laryngoscope, St. Louis

June, 1919, **29**, No. 6

Amyloid Tumors of Larynx. G. H. New, Rochester, Minn.—p. 327.
Surgery of Trifacial Nerve. J. F. Barnhill, Indianapolis.—p. 342.
Study of Aural Complications of Recent Influenza Epidemic with Special Reference to Clinical Picture. F. T. Hill, Oglethorpe, Ga.—p. 351.
Case of Fibrosis of Tissues Lining External Auditory Canal and Tissues Overlying Mastoid. L. W. Dean and M. Armstrong, Iowa City, Ia.—p. 365.
Simple, Safe and Rapid Tonsil Enucleation Technic for Local or General Anesthesia. L. Gatewood, New York.—p. 369.
Practical Value of Ear Studies. L. Fisher, Philadelphia.—p. 374.
Foreign Body in Esophagus. F. W. White, U. S. Army.—p. 379.

Medical Record, New York City

July 19, 1919, **96**, No. 3

Food Conditions and Nutritional Diseases in Europe; Etiology of Pellagra. S. Harris, Birmingham, Ala.—p. 89.
Results of Duodenal Alimentation in Peptic Ulcers. M. Einhorn, New York.—p. 95.
Hayfever in Children. W. Scheppegrell, New Orleans.—p. 97.
Signs of Thyroid Disturbance. J. H. Leiner, New York.—p. 99.
Prophylaxis of Sequels of Influenza. T. J. Tudor, Keokee, Va.—p. 101.

Minnesota Medicine, St. Paul

July, 1919, **2**, No. 7

Graphic Recording of Reflexes, Clonus and Tremors, E. M. Morris, Minneapolis.—p. 237.
Etiology and Treatment of Acute Poliomyelitis. X. E. C. Rosenow, Rochester, Minn.—p. 253.
Poliomyelitis. W. P. Greene, St. Paul.—p. 256.
Rickets. G. A. Scherer, Duluth.—p. 260.
Automatic Syringe. A. N. Bessesen, Minneapolis.—p. 265.

Missouri State Medical Association Journal, St. Louis

July, 1919, **16**, No. 7

*Chronic Endometritis. O. Schwartz and C. O. Kohlbry, St. Louis. p. 209.
Physician's Service. M. P. Overholser, Harrisonville, Mo.—p. 214.
Dedication of Flag to Members of Missouri State Medical Association Who Enlisted in War. H. E. Pearse, Kansas City.—p. 215.
Base Hospital No. 28. G. H. Hoxie, Kansas City.—p. 217.
Suggestions for Conducting Genitourinary Service at Base Hospital. O. L. Suggett, St. Louis.—p. 219.

Chronic Endometritis.—As a result of the study of a large number of uterine curettings, Schwartz and Kohlbry feel that chronic interstitial endometritis is rather frequently encountered. Their cases included many cases with neither history of inflammations or with clinical inflammatory findings, and many were cases of incomplete abortion. The number of small round cells in the early premenstrual, late postmen-

strual and interval phases is never very great, and their arrangement does not correspond to what is found in a chronic inflammatory process. The authors feel that the presence of small round cells alone in marked numbers, as was the case in twenty-four instances of their series, is sufficient evidence on which to base a diagnosis of chronic interstitial endometritis.

Modern Hospital, Chicago

July, 1919, **13**, No. 1

House Surgeon's Memories of Lord Lister. S. Thomson, London.—p. 1.
Aseptic Nursing in American Hospitals. D. L. Richardson, Providence.—p. 10.
Maternity Pavilion at Santa Barbara. W. Soule, Santa Barbara, Calif.—p. 14.
Meaning of Surgical Asepsis. A. E. Hertzler, Halstead, Kan.—p. 23.
Fighting the Bacteria that Cause Infection. F. J. Hall, Kansas City, Mo.—p. 27.
What Is Meant by Surgical Asepsis? A. Nelken, New Orleans.—p. 30.

New Jersey Medical Society Journal, Orange

July, 1919, **16**, No. 7

Complement Fixation Test for Tuberculosis. O. Lowy, Newark.—p. 225.
Gastric Ulcer. F. F. Carman, Newark.—p. 226.
Adequate Treatment of Syphilis. J. J. Seelman, Milwaukee.—p. 230.

New Orleans Medical and Surgical Journal

July, 1919, **72**, No. 1

Small but Valuable Points in Physical Diagnosis. A. C. Eustis, New Orleans.—p. 8.
Easy Approach in Operation of Strangulated Hernias. J. A. Hendrick, Shreveport, La.—p. 15.
Significance of Tonsilitis in Children. C. P. Gray, Monroe, La.—p. 16.
Medical Aspects of Surgical Papers. G. M. G. Stafford, Alexandria, La.—p. 19.
Operation for Unerupted Tooth; Restoration of Parts by Artificial Denture. A. G. Friedrichs, New Orleans.—p. 24.
Charlatanry of a Genius. J. L. Marchand, New Orleans.—p. 27.

New York Medical Journal, New York

July 19, 1919, **40**, No. 3

*Importance of Rest in Treatment of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 89.
Uterine Hemorrhage. A. Sturmdorf, New York.—p. 93.
*Subcutaneous Anesthesia with Ether and Oil for Guinea-Pigs. J. T. Gwathmey and S. W. Bliss, New York.—p. 96.
Influence of Influenza Bacilli in Upper Respiratory Tract. E. H. Schorer, Hoboken, N. J.—p. 97.
Legal Aspects of Narcotic Drug Problem. A. D. Greenfield, New York.—p. 100.
*Cerebrospinal Fluid in So-called Spanish Influenza. H. R. DeLuca, Bridgeport, Conn.—p. 103.
Demonstration of Spirocheta Pallida in Nerve Tissue by Dark Field Illumination. H. B. Shmookler and A. I. Rubenstone, Philadelphia.—p. 107.
Circumcision. J. H. Heacock, New York.—p. 108.

Rest in Tuberculosis.—An abstract of this paper will be published soon in THE JOURNAL as a part of the report of the meeting of the American Therapeutic Society.

Subcutaneous Ether-Oil Anesthesia for Guinea-Pigs.—Many animals during the war were required in both medicine and surgery in the effort to conserve the life of the soldier. The blood of guinea-pigs and rabbits was used extensively in the production of reagents for the Wassermann reaction, and the blood of rabbits was used in the production of diagnostic serum. Dogs and cats aid in the decision of many problems concerning the badly wounded soldiers, such as shock, or the choice of one of several operations. It is desirable to anesthetize these animals in the most humane, the simplest, quickest and safest way. These requirements have been met by the subcutaneous injection of ether and oil. After various modifications, the technic, as finally employed, consisted in giving the injection just back of the neck, against the direction of the hairs, which are not removed. The following doses have been determined for guinea-pigs: For each 100 gm. of body weight, 85 per cent. ether with 15 per cent. olive oil was the mixture used in the experiments. Maximum safe dose—anesthesia of one to two hours: 0.74 c.c. of ether, or 0.87 c.c. of 85 per cent. ether and 15 per cent. of oil mixture (or 1.00 c.c. of 75 per cent. ether and 25 per cent. oil mixture). Medium dose—anesthesia for about one hour: 0.55 c.c. of ether, or 0.65 c.c. of 85 per cent. and 15 per cent. oil mixture (or 0.72 c.c. of 75 per cent. ether and 25 per cent. oil mixture). Minimum practical dose—anesthesia of about thirty minutes: 0.46 c.c. of ether, or 0.54 c.c. of 85 per cent. ether and 15 per cent. oil mixture (or 0.60 c.c. of 75 per cent. ether and 25 per cent. oil mixture).

Cerebrospinal Findings in Influenza.—This report is based on twenty-five typical cases of influenza, the patients ranging from 7 to 42 years in age. In all cases an increase in the pressure of the spinal fluid was noted. This varied from a strong full stream to a rapid flow of drops. The first important point of interest noted was the clearness and translucence of the fluid; in no case was the fluid turbid or cloudy. The globulin reaction of Noguchi was strongly positive in all; a flocculent precipitate showing immediately on adding the sodium hydroxid solution. A constant deep canary yellow color was present in performing this reaction, just before the precipitate was formed, and on forming the color would disappear entirely. The reduction of Fehling's solution was present in a marked degree. The cell count was found to be low. In one case it was over forty to the cubic millimeter. Differential count of cells showed a predominance of polymorphonuclear cells over the lymphocytes, although disintegration of these cells was marked. No organisms were found after rapid centrifuging of smears made from the fluid. Of the twenty-two cases studied, eighteen showed a positive culture. All of these cases ended fatally, except one. Spinal fluid cultures revealed the presence of a characteristic organism in a large proportion of the cases. The organism is a bacillus, gram-negative, facultative anaerobe, nonmotile, acid producing, and forms spores. The organism was found in 81.8 per cent. of the cases studied. This organism is different from any heretofore isolated from the spinal fluid.

New York State Journal of Medicine, New York

July, 1919, **19**, No. 7

*Etiology of Pneumonias. R. Cole, New York.—p. 253.
*Influenza. A. Lambert, New York.—p. 260.
Aural Complications of Influenza. E. B. Dench, New York.—p. 265.
Meteorotelluric Physicobiochemics of Coryza, Asthma and Influenza. G. N. Jack, Buffalo.—p. 259.
Acute Thyroiditis. G. E. Beilby, Albany.—p. 274.
Method of Computation for Ocular Injuries Applicable to the New York State Workmen's Compensation Law. A. C. Snell, Rochester.—p. 277.
Standard Syphilis No. 1. J. B. Clark, New York.—p. 282.
Helping the Backward Child. F. W. Barrows, Albany.—p. 284.

Etiology of Pneumonias.—The chief point brought out by Cole is that in considering the etiology of pneumonia one cannot consider only the pathogenic micro-organisms. Many other factors must also be taken into account. In few cases of pneumonia, possibly in none, does the disease occur simply because the pathogenic micro-organisms gain access to the lung. A person suffers from pneumonia as he does from other accidents, through a combination of circumstances. Moreover, epidemics also arise when a proper combination of circumstances occur. By focusing attention on one factor alone, the explanation sought for may be found.

Treatment of Influenza.—Lambert says that in the general treatment of the patient with influenza, there seems to be no question that the salicylates and salicin relieve the distressing ache and pain. Ammonium salicylate and ammonium carbonate, in 5 grain doses, every two hours, seem materially to produce this result and to produce a not excessive sweating with the reduction of the temperature. It is in the pneumonic congestions of influenzal type that ergot seems to be of use in reducing the congestion and bring about a better circulatory equilibrium. If not given hypodermically, a mixture of the extract with the extracts of nux vomica and gentian, one-half grain each, every two hours, often seems to produce a good effect. The persistent spraying of the nose and pharynx with some form of silver salt, or some form of mild disinfectant materially aids in confining the infection, in its early stages to the upper passages, and this procedure gives the impression, when tried in a large number of patients, that it prevents in many cases the spread downward into the bronchi and thus limits pulmonary complications.

Ohio State Medical Journal, Columbus

July 1, 1919, **15**, No. 7

Observations in Recent Epidemic as Studied in Wards of Mt. Sinai Hospital. S. S. Berger, Cleveland.—p. 418.
Nitrous Oxid-Oxygen Anesthesia, Cesarean Section and Obstetric Operations. E. I. McKesson, Toledo.—p. 422.
Congenital Plexiform Neurofibroma and Elephantiasis Neuromatosa of Right Arm. F. P. Anzinger, Springfield.—p. 424.

Public Health Journal, Toronto

July, 1919, **10**, No. 7

Nursing, Medical and Hospital Problem in Rural West. F. C. Middleton, Regina, Sask.—p. 297.
*Results of Preventive Vaccination with Suspensions of Influenza Bacillus. A. B. Wadsworth, Albany.—p. 309.
Physician's Part in Preventing Mental Disorder. W. H. Hattie, Halifax, N. S.—p. 315.

Results of Preventive Vaccination Against Influenza.—Wadsworth reports on the use of influenza vaccine in New York state comprising scattered reports from different physicians and health officers, general reports from all the state institutions, and report of special selected institutions. The vaccine was prepared by suspending in physiologic sodium chlorid solution the growth of fifteen different strains of the influenza bacillus on the surface of a coagulated blood glycerin veal agar. One c.c. contained one billion bacilli. Summing up the results of this study as to the practical value of vaccines in influenza, it is evident that the vaccines that have hitherto been used have failed to give reliable protection against influenza or influenzal pneumonia.

United States Naval Medical Bulletin, Washington
Supplement for the Hospital Corps

July, 1919, **1**, No. 10

Hospital Corpsman and Trained Nurse. J. S. Taylor, U. S. Navy.—p. 7.
Transportation of Patients. E. S. Bogert, U. S. Navy.—p. 25.
Oral Surgery. T. B. Hartsell, Minneapolis.—p. 54.
Work of Navy Transports. J. W. Carrol, U. S. Navy.—p. 71.
The Destroyer. G. F. Cottle, U. S. Navy.—p 96

Urology, Baltimore

April, 1919, **3**, No. 2

*Kidney Function in Disease. H. Elwyn, Camp Greene, N. C.—p. 47.
*Pharmacologic Study of Ovarian and Corpus Luteum Extracts; with Special Reference to Contractions of Genitourinary Organs. S. Matsumoto and D. I. Macht, Baltimore.—p. 63.

Kidney Function in Disease.—This paper attempts an understanding of kidney functions in disease and an explanation of the symptoms involved, basing such attempt on the modern theory of kidney secretion and on the facts of kidney pathology so far known.

Ovary and Corpus Luteum Extracts.—The action of fresh and desiccated ovary and corpus luteum was studied by Matsumoto and Macht on the bladder, uterus and fallopian tubes, vas deferens and seminal vesicles of various animals. Corpus luteum extracts have very little effect on the contractions and tonicity of the excised bladder or ureters. Corpus luteum extracts exert a very stimulating effect on the excised uterus and fallopian tubes, but their action on these organs is not specific as the same effects are produced by administration of extracts of all kinds of glands. Corpus luteum extracts exhibit a markedly stimulating action on the excised vas deferens and the seminal vesicles are stimulated by doses of corpus luteum extracts. In respect to their effect on all the genito-urinary organs studied, ovarian extracts exert a very much weaker action than corpus luteum extracts. The peculiar and sensitive reaction of the vas deferens of the rat to the effects of corpus luteum extracts is, physiologically speaking, proportional in intensity to the doses of the drug used, and runs parallel to the effects of the same extracts on the blood pressure and on the pupil of the frog's eye. It, therefore, offers a convenient method for the assaying of corpus luteum preparations on the one hand, and for the testing of physiologic activity of various chemical derivatives of the corpus luteum on the other.

West Virginia Medical Journal, Huntington

July, 1919, **14**, No. 1

Our Obligations with Respect to Public Health Problems of Reconstruction. R. J. Reed, Wheeling, W. Va.—p. 1.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 28, 1919, No. 3052

Part of Consulting Surgeon in War. G. Makins.—p. 789.
Operative Treatment of Simple Enlargements and Tumors of Thyroid. C. Frankau.—p. 792.
Cases Resembling Lethargic Encephalitis Occurring During Influenza Epidemic. J. B. Alexander.—p. 794.
Case of Hydrophobia Eighteen Months After Infection. P. Freyer. p. 795.
Significance of Cerebral Cortex. G. E. Smith.—p. 795.
Reconstruction in Medical Education. W. M. Eccles.—p. 797.

Indian Medical Gazette, Calcutta

June, 1919, **104**, No. 6

Wassermann Reaction in Syphilis as Guide to Treatment. W. D. Sutherland, Calcutta.—p. 201.
*Case of Viper Poisoning. S. W. Coffin.—p. 207.
*Cholera Prophylactic Vaccination. A. Roy.—p. 209.
Calculus of Urinary Tract as Seen in British General Hospital in India. D. J. Harris.—p. 214.
Fish Poisoning in Persian Gulf. C. C. Kelley.—p. 215.

Viper Poisoning.—The treatment now recommended for snake bite poisoning according to Coffin, consisting of the intravenous injections of Bayliss' fluid (gum arabic, 7 parts; sodium chlorid, 0.9 part; water, 92.1 parts), injection of epinephrin and the intramuscular injection of 1 gm. of calcium chlorid with 20 minims of water, is not intended to supersede the administration of antivenene, which should always be injected in cases of viper poisoning, known to be due to Russell's viper or of dubious origin. The treatment is intended as an adjunct to cases known to be due to Russell's viper, and should prove extremely valuable in cases of echis poisoning, there being no available antivenene for the treatment of these cases.

Vaccines in Cholera Prophylaxis.—Roy says that vaccination against cholera has been proved to be so highly efficacious in the army and labor corps as to warrant its extensive use as a prophylactic measure among the civil population during an epidemic, or when cholera is likely to break out. It has been found efficacious in the Japanese epidemic of 1902, in the Russian epidemic of 1908-1909 and in the tea districts in Assam. In the recent war, the beneficial effect of prophylactic inoculation had been proved by Hoffman in the Germany army and by Kaup in the Austro-Hungarian army. The new cholera vaccine of Kasauli is the result of various experiments done from time to time. It combines the efficiency of Haffkine's vaccine with no local or general reaction at all. It consists of a pure, sterilized culture of cholera spirillum absolutely free from any reaction (local or general), and can safely be injected into people of both sexes, of all ages, including infants, and in all stages of health, including pregnant and recently delivered women.

Journal of Laryngology, Rhinology, and Otology, London

July, 1919, **34**, No. 7

Suggested Alternatives to Operation for Adenoids and Enlarged Tonsils in Young Children. J. Donelan, London.—p. 229.
*Latent Sinusitis in Relation to Systematic Infections, Especially Rheumatoid Arthritis. P. W. Williams.—p. 233.
Aqueduct of Fallopius and Facial Paralysis. D. MacKenzie.—p. 237.

Latent Sinusitis in Relation to Systemic Infections.—Two cases are cited by Watson-Williams, one a case of rheumatoid arthritis with chronic catarrhal deafness, and the other a case of rheumatoid arthritis with appendicitis, etc. He believes that these cases prove that a latent sinus infection may persist for a great many years, that chronic rheumatoid arthritis and other infective rheumatic symptoms may be due to a sinus infection and that appendicitis may be due to infection through the gastro-intestinal tract from a nasal sinusitis. The previous history of nasal sinusitis cases is worthy of careful note. Wilson also suggests that some cases of systemic septic infection attributed to tonsil infec-

tion may be due to a nasal sinusitis which has caused the tonsil infection with hypertrophy of the tonsil lymph tissue.

Lancet, London

July 5, 1919, **2**, No. 1

Prognosis of Nerve Injuries. R. Kennedy.—p. 5.
*Eye Color and Abnormal Palate in Neuroses and Psychoses. H. L. Gordon.—p. 9.
Case of Pituitary Tumor Treated by Operation. H. L. Whale.—p. 11.
Spread of Bacterial Infection. W. W. C. Topley.—p. 1. To be Cont'd.
*Uncommon Abdominal Cases Illustrating Some Pitfalls. N. C. Lake and H. K. Kevin.—p. 13.
Case of Multiple Osteoma of Skull Bones. C. N. Stanley.—p. 13.
*Case of Congenital Multiple Sarcomatosis. J. A. Perera.—p. 14.
Case of Cirsoid Aneurysm of Palm of Hand. J. Toedesco.—p. 15.

Eye Color and Abnormal Palate in Neuroses and Psychoses.—Gordon attempts to show that in individuals who are susceptible to the neuroses and psychoses duplex eyes are more than twice as common as simplex eyes. In the same class of individuals the abnormal and arched palate is present in about 52 per cent. of cases. In the same class again, the proportion of duplex to simplex eyes is markedly increased in those cases with narrow and abnormally arched palates, and the increase tends to intensify along with the intensification of the palatal abnormality.

Uncommon Abdominal Cases Illustrating Some Pitfalls.—Kevin reports a case of traumatic diaphragmatic hernia, one of internal hemorrhage from a splenic infarct and a case of acute idiopathic dilatation of the stomach.

Congenital Multiple Sarcomatosis.—In Perera's case multiple rounded and nodulated tumors were scattered throughout the body, e. g., head, thorax, abdomen, upper and lower extremities. These tumors, present from birth, were of varying sizes. There was superficial ulceration in the larger tumors; one or two on the cheeks and legs had started to fungate. The consistence ranged from jelly-like softness in the more superficial ones to more or less bony hardness in the tumors attached to the long bones, ribs and skull.

Medical Journal of Australia, Sydney

June 7, 1919, **1**, No. 23

Psychoneuroses of War. W. R. Regnell, Adelaide.—p. 455.
*Blood Culture in Summer Diarrhea. R. Webster.—p. 460.

Blood Culture in Summer Diarrhea.—Of eleven cases in which blood was noted in the stools, five yielded a positive result in blood culture and six were sterile. Of sixteen other cases, all were sterile or gave a few colonies of *S. albus* only. The several strains isolated from the first three cases conform morphologically, culturally and in their biochemical reactions to *B. faecalis-alkaligenes*. In each instance the organism recovered possessed the following attributes of *B. faecalis:* motility, negative reaction to gram stain, a thick, moist growth on agar-agar, inability to ferment glucose, lactose, saccharose, dulcite, sorbite and mannite, and the property of inducing alkali formation in litmus milk. Its presence in the circulating blood is of particular interest in view of the fact that *B. faecalis-alkaligenes* is not commonly credited with pathogenic power.

Practitioner, London

July, 1919, **103**, No. 1

Vitamins. Sir K. Goadby.—p. 6.
Physiology of Nutrition. W. M. Bayliss.—p. 11.
Dietetics in Childhood and Youth. J. P. Parkinson.—p. 24.
Dietetics in Adolescence. C. Dukes.—p. 30.
Dietetics in Senescence. C. Mercier.—p. 48.
Dietetics in Old Age. T. B. Scott.—p. 55.
General Observations on Diet. H. Campbell.—p. 62.
Dietary of Troops in Home Army During War. S. Wright.—p. 70.

Bulletin de l'Académie de Médecine, Paris

June 10, 1919, **81**, No. 23

*Chlorination of Drinking Water. Dopter and Rieux.—p. 769.
*War Deafness. Marage.—p. 779.
Special Features of Deafness in Musicians. A. Castex.—p. 782.
*Pathogenic Fungus in War Wound. A. Sartory.—p. 783.
Origin and Physiologic Significance of Acetylacetic Acid. L. C. Maillard.—p. 784.
*Glycosuria in Meningitis. E. de Massary and L. Tockmann.—p. 786.
*Treatment of Strabismus. C. Sauvineau.—p. 789.
*Radiosusceptibility of Suprarenals. A. Zimmern.—p. 791.

Chlorination of Water.—The five models of portable apparatus used by the French for sterilizing the drinking water for the troops at the front are described and compared. The working of the apparatus was in charge of the laboratory of the medical department, and all the types used proved satisfactory except for waters containing much clay, as this absorbs the chemicals. These portable apparatus are particularly to be commended for small communities and for colonies.

War Deafness.—See Paris Letter, p. 208.

Pathogenic Fungus in War Wounds.—The fungus isolated by Sartory from the pus in one case was of the Scopulariopsis genus and proved extremely pathogenic for rabbits and guinea-pigs. He describes it as a new species.

Glycosuria in Meningitis.—Glycosuria seems to be rare in meningitis. De Massary and Tockmann discovered it in 3 of 45 cases. Cazamian in 3 of 9, and Loeper in 1 of 7. In the 3 cases reported in detail the meningitis had become partitioned off in the ventricles; the antiserum by lumbar puncture failed to reach this ventricle focus, and the men died. As these seemed to be the only ones with this involvement of the ventricles, and as these were the only ones with glycosuria, the inference seems justified that the glycosuria was a warning signal that the disease had invaded the ventricles. The irritation from this acted like the sugar puncture of the third ventricle. Trephino puncture of the ventricles thus seems the logical indication with glycosuria in meningitis, judging from the necropsy findings in these 3 cases. The glycosuria is not inevitably a sign of malignant course, as Cazamian had only one death in his 9 cases of glycosuric meningitis.

Treatment of Strabismus.—Sauvineau affirms that the deviation of one or both of the eyes is only a secondary symptom of strabismus. The essential disturbance with strabismus is inability to focus the lines of vision on the object, and this, he insists, is the result of an anomaly in the perceiving centers in the brain. Only the visual image from one eye alone is perceived. The cross-eyed are cerebrally blind of one eye. Both eyes may be visually perfect but the brain perception is monolateral; the brain neutralizes or drops out the image furnished by the deviated eye. Treatment should consist in training the brain centers to bilateral vision; the deviation of the eyeball will then usually correct itself spontaneously. He accomplishes this with glasses of complementary colors, green for one eye and red for the deviated eye, through which the subject looks at the flame of a candle through a hole in a screen. At first he sees only the green flame, but by shutting off the eyes alternately he sooner or later finds that he can see a red flame along with the green. This diplopia is converted into normal vision of one flame (theoretically white from the fusion of the two complementary colors), by having the subject relax or contract his convergence, guided by the red and green luminous points. If the strabismus is mild, he soon succeeds in this fusion of the two luminous points into one. Sauvineau has thus conquered strabismus of 30 and 40 degrees in less than three months. With these pronounced cases, it is better to graduate the efforts by the aid of prism glasses. With a prism glass properly placed, the green and red images are brought closer together till they are only a few centimeters apart and the subject easily fuses them. Then weaker prisms are used until binocular vision is reestablished. He declares that a cure can be realized in every case by this simple means (amblyopia is not an obstacle), which can be applied by any practitioner. Of course the procedure succeeds only with true strabismus, not with insufficient convergence from latent diplopia. The tendency to true strabismus seems to be inherited, and the slightest obstacle to binocular vision is enough to bring it on.

Roentgen Treatment of the Suprarenals.—Zimmern has succeeded in making roentgen exposures of the suprarenals and thus inducing histologic modifications in animals and

functional changes in man, without any appreciable by-effects in skin or kidneys. In the clinical cases of hyperfunctioning of the suprarenals, with high blood pressure, the pressure dropped in every case in from two to ten days, and the drop ranged from 2 to 8 cm. The blood pressure kept at this lower point for a shorter or longer period, up to several months in some.

Bulletins de la Société Médicale des Hôpitaux, Paris

May 16, 1919, **43**, No. 17

*Outcome of Chronic Nephritis. P. Merklen and L. Desclaux.—p. 434.
*Chemistry of Fasting Stomach. M. Labbé.—p. 437.
Influenza. A. Gouget.—p. 441.
*Symptoms from Compression of Nerve with Large Goiter. P. Jacob and Labeaume.—p. 446.
Facial Paralysis in Tetanus. Trémolières and Caussade.—p. 448.
*Case of Gastric Syphilis. Galliard and E. Mendelssohn.—p. 452.
*Influenza in Infants. C. Achard, A. Leblanc and Lavedan.—p. 455.
*Epidemic of Relapsing Measles. G. Desbouis.—p. 468.
*Tracheobronchial Glandular Disease. H. Méry and others.—p. 471.

Chronic Nephritis.—Merklen and Desclaux recently reexamined twenty-six men who had been temporarily dismissed from the army a year before on account of kidney disease. There could be no question of a cure in 77 per cent. but treatment had seldom been systematic. In only 35 per cent. of the cases of definite nephritis was the course evidently progressive; in the others the condition had improved or was stationary. The most favorable cases were those of acute chloridemic nephritis, which is the most common form of nephritis in soldiers. That a complete cure of chronic nephritis is possible is demonstrated by two cases of chronic recurring nephritis in men of 49 and 32 given thorough treatment and cured since 1909 and 1915, after the nephritis had returned two and three times in the course of five or six years.

Chemistry of the Fasting Stomach.—Labbé relates that the fasting stomach contained fluid in 91 per cent. of 100 cases of dyspepsia but only in 5 per cent. was the fluid left over from the last meal, with food detritus. With hyperchlorhydria there was manifest gastrosuccorrhea in a third of the cases; in the others there was less than 30 c.c. of fluid. With hypochlorhydria or anachlorhydria, fluid was constant, over 100 c.c. in some cases. With normal gastric juice, there was almost always 30 c.c. of fluid or more in the fasting stomach of dyspeptics. The secretion of gastric juice was sometimes retarded. It is possible that certain cases of gastric ulcer classed as hypochlorhydria when examined one hour after the test meal were in reality retarded hyperchlorhydria. This would explain the tardy pains in these cases of assumed hypochlorhydria. The variations in the chlorhydria, he adds, depend essentially on the free hydrochloric acid of the gastric juice. In his study of numerous cases in soldiers in his service, the evolution of the dyspepsia was mirrored in the chemical findings in the fasting stomach. As the condition improved, the chlorhydria veered to normal. The persistence of abnormal findings indicates a grave prognosis.

Claude Bernard Syndrome with Goiter.—In the case described by Jacob the large goiter in a woman of 30 compressed the trachea and the sympathetic nerve, and the oculocardiac reflex was exaggerated.

Gastric Syphilis.—Galliard and Mendelssohn emphasize that the prompt recovery under specific treatment is sometimes the only means of differentiating a syphilitic affection of the stomach. In the case reported, a man of 55, thirty-three years after he had contracted syphilis, developed hyperchlorhydria and painful dyspepsia with profuse diarrhea but no signs of tabes, no melena nor appreciable tumor, and the stomach was free from adhesions, but radioscopy showed a kind of strangulation which suggested cicatricial tissue. This disappeared however in less than a month, along with the gastro-intestinal disturbances, under mercurial treatment.

Influenza in Infants.—Achard and his co-workers review thirty-two cases of influenza in infants with or without complications on the part of the air passages. Eight of the thirty-two infants died; the disease was well under way when the children were brought to the hospital. The influenza was of the same three types as in adults, simple, with bronchitis, or with pneumonia. They describe each case in full as a contribution to the better knowledge of influenza in infants. No difference in its course in breast-fed infants could be detected.

Relapsing Measles.—Desbouis reports an epidemic of 30 cases of measles in which in 7 a typical new eruption developed the sixteenth, thirteenth or twenty-seventh day after the first eruption. The type of the epidemic was severe, 3 of the 30 cases terminating fatally. Oculonasal catarrh accompanied each eruption. This with the other findings he accepts as testimony against the possibility that the second eruptive disease might have been rubeola.

The Radiologic Findings with Disease of Glands at the Hilum.—Méry with his collaborators class these *adénopathies hilaires* by the roentgen findings in three groups, as they show by illustrated summaries of fifteen cases in children. The three types of findings may be observed in turn in the same child, all starting in the hilum, close to the sternum in the first three interspaces, and running a slow course, with persistence of the physical signs and tending usually to recovery. There is evidently an inflammatory process in the ganglia of the hilum inducing reactions in the neighboring tissues. They have encountered cases of this kind more often since the pandemic of influenza. This may have reactivated dormant processes. In the discussion that followed, Rist emphasized that the fact of retrogression of the lesion does not exclude the possibility of the lung having been involved in the process.

Paris Médical

June 7, 1919, **9**, No. 23

*Postfebrile Alopecia. R. Sabouraud.—p. 437.
Postvaccinal Trichophytosis. Gougerot.—p. 442.
*Oil Dermatitis. P. Blum.—p. 445.
*Syphilitic Vitiligo. A. Touraine.—p. 451.
Factitious Phlegmon of the Hand. Burnier and Baudoin.—p. 456.
Fatal Pyosepticemia from Furuncle. Blanc and Colombe.—p. 457.
*Tabes from Inherited Syphilis. A. Galliot.—p. 462.
Duret's Universal Prophylactic Salve. G. Milian.—p. 464.

Postfebrile Alopecia.—Sabouraud remarks that he does not know of any thorough study of this subject that has been published. It has been his experience that a diffuse, general and sudden falling of the hair can be traced to some febrile state from sixty to eighty-five days before in which the temperature passed 39.5 C. (103 F.). The falling of the hair seems to be proportional to the height and duration of the fever. The hairs keep dropping out for from four to six weeks, but they do not all fall, and they grow again in a few weeks. The longer hairs drop out first. These rules apply without exception, he says, to all cases. The physician can confidently reassure the woman that she will not become entirely bald, and that her hair will grow again and this very soon. She can have a switch made of the hairs that have dropped out, but there is no necessity for a wig as the hair will soon grow again. Sabouraud protests against the practice of cutting the hair to aid in its regeneration. There is no logical basis for this as he explains; grass grows better when it is cut, but this cuts the head of the grass while the head of the hair is in its follicle. If frequent cutting made hair grow better, men would have better hair than women. He reiterates that women never grow bald like men, and that the difference between the mentality of men and women as it has developed through the centuries is shown more strikingly than anywhere else in the way they regard the falling of their hair. The hair will grow again as before if the scalp is healthy. Friction massage (preferably with a tooth brush) and tonic lotions with a gentle revulsive action giving ten minutes daily to this for a woman, four minutes for a man, are all that is necessary. If the scalp is not healthy, it should be treated according to indications. Sabouraud remarks parenthetically that seborrhea seems to be connected in some way with the adult development of the sexual organs. Eunuchs never have seborrhea and never become bald. A seborrheic woman loses the seborrhea when she becomes pregnant, and her hairs do not drop out in the same way, but after delivery the seborrhea returns. There is no appar-

ent relation between the excessive or the nonuse of the sexual organs and the seborrhea.

Oil Acne.—Blum gives an illustration of the dermatitis observed in workers in munitions and cloth factories, etc., where lubricating oil is used in abundance. Oil-mixed metal or cotton dust obstructs the follicles and the result is an occupational folliculitis, a crop of "oil pimples."

Syphilitic Vitiligo.—Touraine urges the necessity for seeking syphilis in every case of vitiligo, and he emphasizes the frequency of meningeal reactions with vitiligo. He has compiled 39 cases of nervous affections, from hemiplegia to tabes, in the course of vitiligo, but it is only recently that the spinal fluid has been examined in this affection. In 24 of 37 cases the spinal fluid was abnormal. In 81.1 per cent. of all cases of vitiligo examined, the patient proved to be syphilitic. It seems to be due to a trophic radieulitis.

Tabes from Inherited Syphilis.—In Galliot's two cases the inherited syphilis had been absolutely mute in one; the tabes developed at 29 and 36. The uneven pupils in one case had been noted from childhood but vision was normal; under treatment of the tabes the pupils became symmetrical. In both, the tabes developed under the stress of the campaign.

Presse Médicale, Paris

June 12, 1919, **27**, No. 33

*Outcome of Suppurating Elbow Arthritis. R. Leriche.—p. 317.
*Radiotherapy of Tuberculous Arthritis. A. Briton.—p. 320.
*Adenophlegmons of the Hilum. G. Jean.—p. 320.
*Epitheliomas of the Glans Penis. L. M. Bétancès.—p. 321.
*Hot Saline by the Vein in Shock from Hemorrhage. C. Dunet.—p. 323.
Arsenic Content of Neoarsphenamin. G. Dupont.—p. 324.

Resection of Elbow.—Leriche has recently reexamined twelve men who required subcapsular-periosteal resection of the elbow for suppurating osteo-arthritis after a war wound. He followed Ollier's technic, and reports that the ultimate results over two years afterward are remarkable from every point of view. Some of the cases illustrated show perfect functioning of the elbow. The intrafebrile resection of the infected joint was done from eight to fifteen days after the wound. Patience and perseverance on the part of both surgeon and patient are indispensable, but few operations on an infectious focus give such satisfactory final results to the patient himself and to those who have been tending him. Leriche's roentgenograms show the workings of the new joint. The head of the radius often becomes regenerated with surprising perfection. He begins to mobilize the joint in two weeks, doing it himself and very gently, and teaching the patient to use the joint himself, without abrupt movements. Heliotherapy was applied when possible, and recuperation was almost integral in some of the cases.

Radiotherapy of Tuberculous Arthritis.—Briton gives the details of three cases to confirm the superiority of roentgen treatment in certain cases of tuberculous arthritis. The tuberculous processes were in the ankle and astragalus, the elbow or the lumbar vertebrae, and the patients were two young women and a man of 28. The vertebral process in the man had been curetted two months before and the focus was still suppurating and spreading. The process was given roentgen exposures every two weeks at first and with longer intervals later. Each dose was about 4 H. with 1 mm. aluminum filter at first and later 2 mm. The exposures were given for six months in all, and the cure has been apparently complete since 1912 or 1913 in each case. The process in the elbow of the woman of 27 had been curetted three times in the course of five years but kept recurring until apparently permanently cured by the radiotherapy.

Adenophlegmons of the Hilum.—Jean has encountered this affection only in about 1 per thousand of his cases of influenza. In one case that came to necropsy the adenophlegmon had dominated the clinical picture and had involved the hilum of the lung where it had induced a large abscess that had opened into a bronchus. The symptoms from the presence of the adenophlegmonous tumor are associated with symptoms from the compression of the hilum, but relief follows the irruption of the pus into the air passages. In one case the phlegmon emptied into the interlobe. By radioscopy of every patient with a vomica, it was easy to detect the shadow of the adenophlegmon except when encysted pleurisy of the hilum casts a similar shadow. The pleurisy process soon spreads or subsides, while the adenophlegmon may last for several weeks. In the four cases he has encountered, one of the patients died. He shrank from operating from fear of infecting the mediastinum, and applied only medical treatment as for any cavity in the lung.

Epithelioma of the Glans Penis.—Bétancès reports three cases in which a small red bunch had been noticed in the glans penis for about two years and a half, never causing pain or other disturbance, but it kept very slowly increasing in size. Microscopic examination of a scrap from one showed an apparently benign papilloma, but the tissues of the second proved a little more complex, and in the third the microscope showed malpighian basement-celled epithelioma with a pronounced tendency to invade neighboring tissues. The lesion was resected in this case, and a year later pronounced epitheliomatosis of the glands became manifest. The findings therefore testify to the probably malignant nature of these "warts." The three cases represent the different stages: leukoplasia, papillary epithelioma and cancer. The article is illustrated, and Bétancès emphasizes the red, uniform velvety aspect of the "warts," scarcely protruding above the level of the skin, but they feel thick when taken between the thumb and finger.

Hot Saline by the Vein in Shock from Hemorrhage.—Dunet conceived the idea that the best way to warm up the patient in shock was to warm him from within by injecting physiologic saline heated to 55 C. (131 F.). This is a temperature just below 56 C. which is the limit of tolerance of thermo-unstable substances. He ventured to apply this as a last resort to a man of 54 who had been bleeding for two hours after the upper third of his thigh had been crushed by a street car. Dunet infused in the femoral vein 2 liters of the heated artificial serum in the course of four or five minutes. Before the close of the injection, the natural tint returned to the skin, the face no longer looked pinched and the pulse could be felt again, the beat about 100. At the close of the injection the man spoke, saying he felt warm all over. He was put back to bed and in half an hour said he wanted to smoke.

June 19, 1919, **27**, No. 34

*Gastric Cancer with Anasarca. A. Gouget.—p. 329.
Subumbilical Eventration. H. Chaput.—p. 331.
*Nature of Wassermann Reaction. A. Vernes.—p. 333.

Gastric Cancer with Anasarca.—Gouget has compiled seven cases since Chesnel's five, and reports one personally observed, in which dropsy was an early sign of gastric cancer, the heart and kidneys apparently sound. In some of the cases the anasarca and weakness were extreme but there were no appreciable stomach or kidney symptoms. Necropsy disclosed the cancer in the stomach. In other cases the anasarca seemed to be rather a complication than a clinical form of gastric cancer. In some in this group the whole course was only two and a half months from the first symptoms which were vomiting and abdominal pains. In one case the edema was the first sign of trouble, coming on in the midst of health, with no heart or kidney symptoms. The edema subsided and returned again and again, the man of 59 growing constantly weaker. At the end of three months a tumor was discovered and death occurred two weeks later. The stomach was almost completely filled with vegetations. One woman had no symptoms except the generalized anasarca and weakness till the end came in a few months. In a third group, including his own case, the anasarca kept coming and going for a year or more. The patients came to the hospital again and again during a whole year for treatment of the anasarca, which seemed to be essential dropsy. In one in this group, hematemesis was the first symptom, preceding the anasarca by four days, but there was nothing else for more than six months to attract attention to the stomach. In Gouget's case, the woman of 52 had been healthy until the anasarca and ascites developed. This subsided and recurred repeatedly, one of the free intervals being four months long, under a milk-vegetable diet, digitalis and theobromin. To the very

end there were no gastric symptoms nor even pronounced anemia. The emaciation was masked by the edema. The long and multiple remissions of the edema and the retention of relative good health mislead away from the suspicion of cancer, especially as there are no objective manifestations of malignant disease. Nothing is to be learned from examination of the blood and gastric juice; radioscopy might prove more useful. The chief reliance for differential diagnosis of the cancer is the discovery of occult blood in the stools.

Nature of Seroreaction in Syphilis.—Vernes seeks to demonstrate that the flocculent property of the blood serum is a property that can be measured, and that different classes of serums possess this property in different degrees. Estimation of the degree of turbidity of the serum shows to which class the serum belongs. With a stable colloidal suspension, addition of substances which cause flaking show a whole scale of flocculation reactions according to the substance used. Human serums and hog serum cause different degrees of flocculation in this stable colloidal suspension. It can thus be played on for a whole scale of flocculation reactions, and they can be recorded with precision. He uses for this a colorimetric scale with eight notes like the octave on the piano, with the octaves below and above. The degree of opalescence determines the place in the scale of the fluid being examined. The extent of the flaking with a given fluid is proportional to the amount of the fluid used.

Syphilis augments the flaking properties of normal serum, but this property fluctuates within wide limits although always much above normal in the scale with active syphilis, and the variations are always peculiar to syphilis. His charts demonstrate and illustrate his assertions that infection with syphilis increases the flocculent power of the blood serum. Under treatment with arsenic, this property becomes attenuated and the flocculation may drop to correspond with that of normal serum. If the treatment is inadequate or stopped too soon, the flocculation power becomes more pronounced again. When the flocculation property has kept within normal range for eight consecutive months he has never known further manifestations of the syphilis to develop. In addition to the colorimeter scale he uses a transparency scale to detect the slightest variations in the turbidity. He regards these variations as testifying to the intensity of the infection, and asserts that by this means we have a gage for estimating the intensity of the syphilitic infection by the variations in the flaking property. The Wassermann reaction sets in play the flaking action of the human serum on the suspension (false antigen) when the flaking power of the serum is sufficient to overcome the resistance to flocculation imposed by a hematolytic dispersion element, such as pig serum. The alleged "antigen" is in reality merely a suspension of a certain physical composition.

Progrès Médical, Paris

May 3, 1919, **34**, No. 18

Cadavers for Teaching Purposes. L. Lortat-Jacob.—p. 169.
Extraction of Foreign Bodies under Roentgen Rays. Fievez.—p. 170.
Spa Treatment of the Stomach. E. Binet.—p. 173.
Acute Mediastinal Emphysema. M. Barbier.—p. 174.
Adenophlegmons in Right Iliac Fossa. P. Roulogne.—p. 176.

May 24, 1919, **34**, No. 21

*Attitudes of Certain War Wounded. J. Lhermitte.—p. 199.
Phobias and Emotivity in Soldiers. H. Damaye.—p. 200.
Amebic Liver Abscess. L. Ramond.—p. 202.
*Stomach Affections and Mineral Waters. E. Binet.—p. 205.

Pathodixia.—Lhermitte has coined this term to express the ostentatious and permanent exhibition of an affection. He does not refer here to the displaying of lesions by beggars but to the medical domain of the war neuropaths. The initial emotional phase is followed by a phase of hypochondriac uneasiness and this finally settles into an automatic stereotype attitude. It is the exact opposite of the strange psychologic attitude which Babinski has described under the name of anosognosy, the patients apparently unaware of their hemiplegia or other affection, or entirely indifferent to it. Both of these psychopathies call for treatment which can only be psychotherapy.

Gastric Affections and Spa Treatment.—Binet reviews the different indications for different types of mineral springs with stomach affections. He discusses in particular the nervous element in dyspepsia, and the stomach troubles which mask liver disease or gallstone mischief. He asserts that Vichy water, in particular, soothes the spasm of the pylorus and reduces the hypersecretion of gastric juice while regulating liver functioning. With the exception of parasitic dysentery, all intestinal affections seem to improve under a course of treatment with Plombières and Chatel-Guyon waters. Dyspepsia associated with obesity, gout, gravel, oxaluria or diabetes benefits by a course of diuretic waters like those of Evian and Vittel, or a course at Vichy.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 7, 1919, **49**, No. 23

*War Psychology. C. Odier.—p. 841. Concluded in No. 24, p. 882.
*Influenza. J. L. Burckhardt.—p. 853. Conc'n.

War Psychology.—Odier deals here with that branch of war psychology affecting the spine, the imagined inability to stand erect. This has been called camptocormia (from the Greek words "I bend" and "the trunk"). The body is bent over in a physiologic attitude, and the neurosis consists in the fact that the subject does not straighten up. His analysis of the neurosis shows that the main factors are a conscious phobia of everything connected with the fighting, and a subconscious longing for protection. The whole is thus a phenomenon of autoprotection. The camptocormia corrects itself as the man lies flat on his back, and a plaster corset is then applied for two or three weeks, a *période de desincubation forcée*. This method is effectual, but it takes so much time that it has been superseded by what Odier calls *suggestion électro-psychique impérative*, which he describes in minute detail and emphasizes the brilliant successes realized with it in the neuropathic syndromes engendered by the war. The most brilliant successes have been realized with functional paraplegia, but sometimes a sitting of several hours is necessary for this. Camptocormia of three years' standing has often been cured by this means in fifteen minutes. He says that it has been styled "brutal," and the men call it "being torpedoed," but we have to fight the blind forces of the subconscious, and strong measures may be needed.

Etiology of Influenza.—Burckhardt concludes from this study of the pandemic that some filtrable nonbacterial virus is evidently the primary causal agent. According as other germs intervene on the soil thus prepared, we have the various forms of the disease.

June 14, 1919, **49**, No 24

*Foreign Bodies in the Bladder. R. Hottinger.—p. 875.

Foreign Bodies in the Bladder.—Among the numerous cases reported by Hottinger was one in which a youth had molded a bougie from beeswax and introduced it into the urethra to prevent bed-wetting, as he was subject to enuresis. The bougie slipped into the bladder and set up obstinate cystitis. Hottinger injected a fluid into the bladder and then injected 12 c.c. of xylol. This floated on the other fluid and dissolved the wax which was likewise floating on the fluid. He had the patient massage the bladder region from time to time, pounding it a little, to facilitate the dissolving of the wax. At the end of the fourth hour a milky urine was voided and as it cooled the wax separated out. The cystoscope showed the bladder free from wax, and the cystitis rapidly subsided. There was only a moderate burning sensation while the xylol was in the bladder, and there have been no further disturbances since. Xylol seems to dissolve wax and paraffin more readily than benzin, which has been commended for this purpose.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 8, 1919, **40**, No. 37

Diasthemia with Caries of the Teeth. U. Fabris.—p. 354.

May 11, 1919, **40**, No. 38

Typhoid in Malarial Zones. M. Gioseffi.—p. 361.
Lethargic Encephalitis. L. Tacconi.—p. 364.

Policlinico, Rome

June 1, 1919, **26**, No. 22

Asthma. G. Sabatini.—p. 673. Summarized on page 303.
Modification of Bassini Herniotomy. D. Giorgacopulo.—p. 686.
Traction on Soft Parts of Stump. P. Ferraresi.—p. 689.

June, 1919, **26**, Medical Section No. 6

*Malignant Granuloma. P. Sisto.—p. 209.
*Amebic Liver Abscess. Simoncelli.—p. 222; Id. Pontano.—p. 236.
*Malaria in Italian Troops. C. Pezzi.—p. 239. Conc'n.
*Differentiation of Pneumococcus from Streptococcus. V. Cavara.—p. 245.

Malignant Granuloma.—Sisto reports a case of typical malignant granuloma or Sternberg's disease in which nothing could be found which suggested a tuberculous origin during life or postmortem or by inoculation of eight guinea-pigs. He cites further Viola's experience that inoculation of some guinea-pigs with glandular tissue from a case of malignant granuloma in which the histologic findings and acid-resisting bacilli suggested tuberculosis, resulted in the development of typical Sternberg's granulation tissue in the guinea-pigs. The surgeon who excised the gland tissue from the patient scratched his finger at the time and he, too, developed enlargement of the glands in the axilla and epitrochlear region all of the characteristic granulation type. This mishap was equivalent to a scientific experiment. Even if a tuberculous lesion is found in a case of Sternberg's disease, it may be independent of the latter. Or the Sternberg disease may discover and rouse to activity some old slumbering lesion. Nägeli has reported a case in which, by a similar mechanism, in the course of leukemia a tuberculous focus flared up and fatal miliary tuberculosis ensued. Sisto reproduced in his guinea-pigs inoculated with gland tissue the typical lesions of malignant granuloma, but he did not inoculate other guinea-pigs from them. Others have done this and found that tuberculous lesions developed therefrom.

Treatment of Amebic Liver Abscess.—Simoncelli protests against trusting to medical means for treatment of amebic liver abscess, saying that the possible perforation of the abscess is a constant peril and that no time should be wasted on medical measures alone. He operates at once and supplements this with a course of emetin, and had four recover in his seven operative cases.

Pontano declares that there is no need for such haste. The amebic liver abscess is often months in developing, although instances are known in which the course was only three weeks. Manson has reported cases of a year and more. Hence there need be no hesitation in waiting to give emetin a trial. In a recent compilation of 162 fatal cases, rupture occurred in only thirty-seven of the cases. This includes twelve cases of rupture into the peritoneal cavity; eleven into the pleura; pneumonia in two and peritonitis in only three.

Malaria.—Pezzi analyzes the experiences during 1918 at the Mantegna military hospital at Milan where large numbers of malarial troops were being treated. Intravenous injections of quinin sometimes proved effectual as a last resource but he emphasizes that their sterilizing action is no greater than when the quinin is taken by the mouth. The route by the vein should be reserved for the graver cases and for malignant tertian when first diagnosed. It is in these cases that results are obtained more rapidly than can be realized by the mouth. In pernicious cases with pronounced toxic phenomena the quinin cannot work a miracle, and it may even accelerate the fatal termination by its greater depressing action on the heart when given by the vein. He always gives a subcutaneous injection of caffein before the intravenous injection of quinin. In three cases there was grave collapse after the intravenous injection, and one patient with exceptionally malignant tertian died. In conclusion he warns that the return of the soldiers to civilian life will undoubtedly spread malaria, and physicians must be on the alert to detect it, especially the subcontinuous fever from the *Plasmodium praecox*. If this is mistaken for typhoid or tuberculosis, the precious time during which quinin would be really effectual is wasted. He urges to think of malaria first of all and not of typhoid, etc., until malaria can be excluded.

Differentiation of the Pneumococcus.—Cavara utilizes optochin to distinguish between pneumococci and streptococci; this kills the former while it has little action on the latter. He has been experimenting with different strains of both microbes. When there is no growth of the microbe in bouillon or bouillon serum containing 1:50,000 optochin (with a control test), in one or two days in the incubator, the microbe present is certainly the pneumococcus, but when cultures develop this does not necessarily exclude the pneumococcus as certain atypical avirulent strains seem to be resistant to the optochin. In case of doubt he inoculates the germ in the vitreous body of a rabbit and examines the exudate twenty-four hours later for lanceolate forms. His tests showed that typical pneumococci, sensitive to optochin, may become resistant to it when cultivated on artificial media. Streptococci require a concentration of 1:5,000 or 1:3,000 before their growth is checked by it.

Riforma Medica, Naples

May 24, 1919, **35**, No. 21

*Calcareous Infiltration. V. Aloi.—p. 414.
*Radical Treatment of Bone Fistulas. G. Morone.—p. 416.
*Gonococcus Ophthalmia. V. Diamare.—p. 420.

Calcareous Infiltration.—Aloi reports a case of calcareous infiltration of a gouty toe and another of an extensive wound of the thigh from explosion of a gun twenty-four years before. The toe was amputated and a year later the same operation had to be done on the other toe for the same cause. The cicatrix in the other case also had to be resected. In both cases there had been suppuration in the region affected.

Treatment of Fistulas in Bone.—Morone excises the entire tract into sound tissue and opens up the focus with a wide opening, saving as much of the skin as possible. He packs the cavity with gauze and applies a moderately tight bandage. The second or third day he takes out the gauze and inspects to see that not a scrap of diseased tissue is left. Then he draws down and fits the soft parts to the raw surface of the bone and brings the edges of the wound together as much as possible. In tunnel cavities he refrains from draining but keeps the lips of the wound apart with gauze packing renewed every three days. The oozing soon stops and then the lips of the wound are brought together; healing is complete in a month or two except in the largest foci which may take three or four months. He applied this method in fifty cases and had no mishaps.

Gonococcus Ophthalmia.—Diamare calls attention to his experience with 140 cases of gonococcus ophthalmia in which the severest lesions were always those with the gonococcus in pure cultures. When it was associated with the micrococcus, and especially with the Koch-Weeks bacillus, the course was exceptionally mild and the ophthalmia soon healed harmlessly. This suggests the feasibility of using the virus of the Koch-Weeks infection to attenuate the gravity of pure gonococcus ophthalmia. He has had no opportunity since to apply this suggestion in practice as he intended.

Archivos Españoles de Pediatría, Madrid

March, 1919, **3**, No. 3

*Malaria in Children. R. Gómez Ferrer.—p. 129.
Disease of Genital Organs in Little Girls. J. Blanc Fortacín.—p. 146.
Cervical Ribs; Two Cases. C. Pelfort.—p. 154.

Malaria in Children.—Ferrer has found malaria in children of all ages but it is liable to be misinterpreted in infants, especially as it so often is associated with another infection. In the case of one child of 4, for example, pneumonia kept up a long progressive course with exacerbations as more zones of the lung were invaded. But a tendency to collapse returning at certain hours was explained by the malarial parasite in the blood, and under quinin the clinical picture gradually retrogressed. Any febrile process of an intermittent type in children should suggest possible malaria if it has been in a malarial region or in contact with a person known to have or have had malaria. The mere suspicion does not justify quinin treatment, as various infectious fevers may assume an intermittent type. Inability to discover the plasmodium in the blood does not inevitably exclude malaria while on the other hand, he reiterates, the discovery of the plasmodium in a healthy subject need not convict him of

malaria. The malaria plasmodium may induce a continuous or remittent fever. When a child seems to have malaria, alone or with some other infection, the laboratory should be consulted but quinin should be given while waiting for the laboratory report or even if the report is negative unless there are formal contraindications against quinin. Physicians who have practiced in a malarial zone are very apt to see malaria everywhere. The glands in the neck may enlarge, simulating glandular fever, but all subsides under quinin. One of his child patients was unable to bear quinin, urticaria and distress following its administration, so it had to be abandoned and the malarial attacks recurred for more than two years. Sometimes a change in the quinin salt may prove useful. Subcutaneous injections may prove surprisingly successful. He has never given quinin by the vein but would not hesitate to do so if other measures failed, or in pernicious malaria with a rapid course. If all else fails, change of climate may save the child, especially a change to 3,000 feet above the sea or more, but it is wise to keep up the quinin.

Medicina Ibera, Madrid

May 17, 1919, **7**, No. 80

*Traumatic Shock. V. E. Diaz y Gómez.—p. 121.
*Influence of Sexual Functions in Women on the Defense against Tuberculosis. L. Lasbennes.—p. 123.
*Constitutional Tendencies in Relation to Stomach Disease. R. Sáenz de Santa María y Marrón.—p. 126.

Traumatic Shock.—Diaz concludes his long study of modern conceptions of shock by emphasizing the necessity for measures to raise the blood pressure and combat acidosis. For the former, the most practical method seems to be transfusion of citrated blood, with possibly injection of camphorated oil by the vein, as Heitz-Boyer recommends. It seems to be harmless provided the dose is small and injected very slowly. The acidosis is combated best by sodium bicarbonate by the vein or by proctoclysis.

The Sexual Functions in Women in Relation to Defense Against Tuberculosis.—Lasbennes tabulates the statistics of the tuberculosis mortality at Madrid since 1900, classifying it by sex and age. His figures show a striking reduction in the tuberculosis death rate in women during the child-bearing age and later, in comparison to the male death rate. Up to the age of 20 the female death rate keeps about the same as the male or surpasses it. From 10 to 19 the proportional percentage was males, 41.26, 40.91, 38.22, 47.42 and 41.24, while in females the corresponding figures were 58.74, 59.09, 61.78, 52.58 and 58.76. After 20 the female death rate ranged from 29.59 to 49.46 as the extreme figures, while the male death rate ranged from 50.54 to 70.41, and averaged over 60. If experiences elsewhere confirm this relative lesser receptivity of women and the greater receptivity of girls after puberty, the practical deduction would be to prescribe matrimony in certain cases of "pretuberculosis" instead of forbidding marriage in such conditions, as is often done. There is a possibility also that ovarian treatment might prove an effectual adjuvant in treatment of tuberculosis.

The Constitution in Relation to Stomach Disease.—Santa María relates that over 70 per cent. of his patients with chronic stomach affections show signs of deficient suprarenal, thyroid or genital functioning, manifested especially in asthenia. More than 30 per cent. of all these chronic stomach cases show vagotony and this is responsible for the excessive secretion and peristalsis in the stomach. Even large doses of epinephrin fail to induce the usual reaction, while atropin only briefly modifies the bradycardia which is constant with almost all gastropathies. Suprarenal treatment, rather than treatment addressed to the stomach, is called for in these cases with hypersecretion and vagoneurosis, especially when violent contractions follow the evacuation of the stomach and eating food relieves the pain. The kind and intensity of the stomach symptoms do not determine the prognosis so much as these constitutional factors. He urges medical school inspectors to be on the alert to detect these constitutional deficits so that treatment in time may transform these incipient valetudinarians. This group now forms almost the entire body of his patients with chronic stomach and liver disease.

Plus-Ultra, Madrid

February, 1919, **2**, No. 8

*Cerebellopontine False Tumor. W. L. Albo and G. Hormaeche.—p. 61.
*Endocrine Types in Art. F. R. Rodriguez Mata.—p. 73.
*Diathesis and Anaphylaxis. C. S. de los Terreros.—p. 84.
Dilating Muscle of Pupil. T. Barraquer.—p. 85.
Character and Its Classification. M. Ruiz Maya.—p. 86.
Traumatic Degeneration of Human Spinal Cord. F. M. Urra.—p. 94.
*Lethargic Encephalitis? C. Juarros.—p. 98.
*Paget's Disease. P. Hauduroy.—p. 100.
*Vertex Presentation. E. Macías de Torres.—p. 103.
*Sarcomas, Especially in Long Bones. R. Lozano.—p. 109.

Cerebellopontine False Tumor.—In the case reported by Albo and Hormaeche they located the morbid process exactly in the cerebellopontine region, but instead of the anticipated tumor it proved to be a cyst from chronic circumscribed serous arachnoiditis, in the lateral cisterna. There seem to be no means for distinguishing between a cyst and a tumor in this region, and it is a difficult matter to locate the process at an early stage, before important nerves are suffering from the pressure. The necropsy findings in this case suggest that if the extremely tardy and slight participation of the involvement of the right acoustic nerve had been heeded during life, it might have revealed that the process compressing the trigeminal nerve (neuralgia), the facial nerve (paresis), and the vestibular nerve (vertigo and reduced excitability) could not have originated in the acoustic-vestibular trunk nerve. The three cerebellar seizures which the woman had had were at first ascribed to hysteria. These cerebellar seizures or vagal attacks seem to be peculiarly characteristic of tumors in the arachnoid cisternae. Cushing ascribes them to fluctuations in the tension of the fluid in the cisternae. The fact that the first symptoms coincided with some infectious process, puerperal fever in this case, is presumptive evidence in favor of a cystic tumor rather than a solid tumor. The cerebellar hemisyndrome may be lacking entirely in cases of arachnoid cyst of the lateral recessus but, on the other hand, the intracranial tension and the atrophy of the optic nerve may be as extreme as with an intracranial tumor. With suppurating otitis or mastoiditis, pus may accumulate in the cerebellopontine region and induce all the symptoms of an intracranial tumor at this point, as the deafness from the primary process aids in misleading the diagnostician. There may even be homolateral cerebellar symptoms. Hormaeche diagnosed and successfully removed an accumulation of pus in a case of this kind.

Endocrine Types in Art.—Rodríguez Mata gives nine reproductions of famous paintings depicting dwarfs, cretins, the obese, and instances of excessive or deficient thyroid functioning. In addition to these, three full-page colored reproductions are given of Gisbert's Paolo and Francesca, da Vinci's La Gioconda, and Velazquez' Don Antonio. As the page of the *Plus-Ultra* measures 11 by 14½ inches, this issue is an imposing art number. Mata remarks that medical journals might well study the works of the masters as although they may misinterpret some of the special scientific features of the case, yet they record psychic elements which may give the clue to the whole. He regards La Gioconda as an example of slight hypothyroidism, from the eyebrows and the doughy aspect of the face. The reproduction is from the earlier painting at Madrid, not the Louvre copy. Mata does not know of any painting depicting subjects with exophthalmic goiter, but in some which he reproduces, extreme terror or rage is represented by protrusion of the eyeballs, as in Rubens' Battle between the Centaurs and the Lapithae.

Diathesis and Anaphylaxis.—De los Terreros has long been preaching that the diathesis and its manifestations are nothing more than variants of anaphylaxis. The diatheses are more pronounced in children as their biology is unmixed with the panvaccination to which it is subjected later, while their intestinal walls are more permeable to heterologous albumins and their digestive juices are less potent than in adults. In treatment of the diatheses, we should be guided by what has been learned from anaphylaxis in animals.

Lethargic Encephalitis.—Juarros reports the first two cases of lethargic encephalitis to be published in Spain. One was

of such a fulminating type that it proved fatal in less than twenty-four hours from the first signs of delirium, followed by bilateral ptosis and coma, but there had been slight fever and symptoms of catarrhal gastro-intestinal disturbance for four days. The other patient was a young woman; the disease began with a slight chill and mild fever, improving in three days, but the fourth day somnolency developed, with slow pulse, dilatation of the pupil, no pupil reaction to light or accommodation, and abolition of other reflexes, fibrillary tremor of lips and tongue but no Kernig sign. By the seventh day the temperature was high, with trismus and absolute coma. The ninth day the temperature had reached 42.5 C. (108.5 F.) just before death. There were no convulsions at any time, no anuria, the blood pressure was not high and there was no history of kidney disease. Juarros describes these cases as probably lethargic encephalitis.

Paget's Osteitis Deformans.—Hauduroy gives the roentgen findings in a severe case of deforming osteitis of the legs, but adds that the cause of this disease is as much of a mystery now as when Paget described the first case, in 1876. His patient is a man of 64 with nothing to suggest acquired syphilis, but certain features of the case history point to inherited syphilis.

Mechanism of Vertex Presentation.—De Torres describes with five diagrams what he calls his new ideas in regard to the mechanism of flexion and engagement of the head with vertex presentation.

Sarcomas.—Lozano refers in particular to sarcomas in the long bones, citing experiences which seem to demonstrate that myelogenous sarcomas are less malignant than those that start in the periosteum. There is less danger of metastasis, and the malignant disease remains long confined to the bone, without contact with soft parts. Hence, after its excision, the question of a bone implant may be considered. This is scarcely worth while with the sarcomas that have invaded the soft parts as, although the patient may stand the operation, yet he has to pass the perils of metastasis.

Prensa Médica Argentina, Buenos Aires

April 30, 1919, **5**, No. 33

*The Stages of Tuberculosis in Children. J. P. Garrahan.—p. 321.
*Tardy Inherited Syphilis. R. E. Parody.—p. 325.
Papulous Eruption of Probably Tuberculous Origin. P. M. Barlaro.—p. 326.

The Phases of Tuberculosis in Children.—Garrahan discusses the anatomy of the primary focus in the lung with tuberculosis in a child, tabulating and illustrating the principal features in six infants less than a year old and in four children from 2½ to 9 years old. In most of the children there had been nothing to suggest a pulmonary lesion, one child dying of tuberculous meningitis, and three of intercurrent disease, but in all the pulmonary lesion was pronounced, and with it the satellite tracheobronchial adenopathy. His experience confirms the great prevalence of the primary focus in the lung. Acuña found only 3 among 96 tuberculous infant cadavers in which the mesenteric glands were the only ones affected. Ulcerative lesions in the intestines were invariably secondary. The inoculation chancre in the lung and its satellite adenopathy form the initial phase of tuberculosis but it may escape detection. The adenopathy may become more evident while the pulmonary focus remains stationary; this seems to be a special feature of tuberculosis in very young children. Reinfection does not induce these pronounced glandular processes.

The second phase of tuberculosis comprises the diffusion of the process. This may occur by aspiration, by the lymphatics, or by the blood. One infant only a month and a half old had the small cheesy nodule in the lung with its satellite adenopathy and miliary generalization, just like experimental tuberculosis in a guinea-pig. With the same findings in a child of 2 there was, in addition, the meningeal lesion which dominated the clinical picture. The older the infant and child when the primary focus develops, the greater the chances for its conquering the infection, that is, not letting it get beyond the first phase. This latent process then is revealed only by tuberculin tests or necropsy. The third phase is the tardy form, reinfections or exacerbations, in older children and adults. We have then the common chronic pulmonary tuberculosis, generally apical, or tuberculous lesions in bones, liver, pericardium, larynx or pleura, or lupus or certain cases of iritis.

Tardy Inherited Syphilis.—Parody reports the case of a boy of 9 who has had severe attacks of spasm of the glottis since he was 2 years old and lately has been having a dry spasmodic cough, asthma, manifestations of hemophilia and intense anaphylaxis after injection of horse serum to combat the hemophilia. Finally symptoms of meningitis developed. Mercurial treatment was then begun on account of the stigmata of inherited syphilis, and at once the meningeal symptoms, asthma, etc., subsided and the child was in excellent health for several months when he grew nervous again and the spasmodic cough returned. Mercurial treatment was resumed anew and clinically normal conditions were promptly restored and have persisted during the months since to date. The discovery that the inherited syphilis was probably responsible for the whole train of symptoms presented by this child suggested mercurical treatment at once when another child in the same family began to develop asthma and asthmatic bronchitis in the same way. No benefit was derived from ordinary treatment but under mercury the improvement was as surprising as in his brother's case.

Revista Médica de Chile, Santiago

January, 1919, **47**, No. 1

Laws of Inheritance of Syphilis. P. Badilla.—p. 5.
Bullet Wound of Brain. V. Gianelli.—p. 14.
*Active Principle of Latua. J. B. Miranda.—p. 19. Conc'n.

The Latua Venenosa.—Miranda has been studying the *Latua venenosa* and now announces that the active principle is the same atropin that is found in the plants of the genus atropa, hyoscyamus, datura and the solanaceae. It grows in Chile where it is called *palo de bruja*.

Revista de Medicina y Cirugía, Havana

May 25, 1919, **24**, No. 10

*Placenta Praevia. L. Huguet.—p. 263.
Complications and Sequelae of Influenza. P. Pons y Zamora.—p. 268.

Placenta Praevia.—In the case described by Huguet there had been profuse hemorrhages, almost fatal, at term but there were no labor contractions. The placenta was central, at the internal os, but he succeeded in dilating the cervix by the Bonnaire method and introduced his hand, rupturing the membranes and feeling for the feet. The woman was being given saline and camphor at the time. He drew down the feet and extracted the trunk and delivered the child successfully by the Mauriceau method, the placenta following it at once. Mother and child were dismissed in good condition the eighth day.

Revista de Medicina y Cirugía Prácticas, Madrid

May 14, 1919, **123**, No. 1554

Relations between Skin and Internal Disease. Eusebio de Oyarzabal. p. 181.

May 21, 1919, **123**, No. 1555

Constitutional Predispositions. C. Calleja.—p. 221.

May 28, 1919, **123**, No. 1556

Prophylaxis of Blindness. F. V. Solares.—p. 261.
*Adherent Placenta. P. G. Gracian.—p. 265.

Adherent Placenta.—In Gracian's four cases of adherent placenta a history of endometritis suggested a possible explanation for the absence of spontaneous separation of the placenta from the uterus wall. The manual separation was a tedious procedure, hampered in two of the cases by repeated violent spasmodic contractions of the uterus, which kept up for some time after the placenta had been removed. Hemorrhages in these cases compelled intervention. The women all recovered promptly.

Semana Médica, Buenos Aires

April 17, 1919, **26**, No. 16

Vaccine Treatment of Eczema. N. S. Lóizaga.—p. 383.
*Postoperative Fever in Infants. P. de Elizalde.—p. 404.
*Influenzal Nephritis in Children. G. Giacobini.—p. 406.
Hygiene for the Working Classes. V. Delfino.—p. 407.

Postoperative Fever in Children.—De Elizalde refers to the occasional abrupt rise in temperature noticed in infants after an operation. There may be diarrhea or convulsions, and the temperature may run up very high. In one child less than 3 weeks old it reached 40.8 C. after an operation for strangulated hernia. One important factor in the production of the fever, he emphasizes, is the lack of water, the children having lost so much fluid in vomiting, diarrhea or hemorrhage, or all combined. This assumption is confirmed by the drop in the temperature when water is supplied freely. Another factor is the difficulty in radiating heat, as the child is bandaged and covered up. Even a healthy child's temperature would be liable to run up under circumstances such as are usual after an operation. The body needs water to eliminate the heat in perspiration. The practical conclusions are to avoid operating in hot, damp weather, avoid overheating the child, avoid vomiting by not giving water by the mouth, and supply the needed fluid by rectal infusion of saline. Saline injected subcutaneously sends up the temperature. Ice to the head, baths, and other means to reduce the treatment may prove useful.

Nephritis After Influenza in Children.—Giacobini states that he has observed numerous cases of nephritis in children following an attack of influenza. The nephritis sometimes entailed anuria, general anasarca, ascites, uremic brain disturbances, or uremia with gallop rhythm and the whole symptomatic picture of serious renal intoxications. The lesions were mainly epithelial from leukocyte infiltration and acute degeneration of the epithelium. In two cases described, in children of 2 and 4, the nephritis had entailed general dropsy or convulsions, but both recovered apparently completely under treatment by Teissier's method, that is, with serum taken from the renal vein of goats (described in THE JOURNAL, Nov. 14, 1908, p. 1738.

Siglo Médico, Madrid

April 19, 1919, **66**, No. 3410

The Public Health Service in Spain. J. F. Rodriguez.—p. 312.
*History of the Medical Press in Spain. A. C. Collantes.—p. 313.
Introduction to Operative Surgery. J. G. Capdevila.—p. 321. Cont'n.

The Medical Press in Spain.—Collantes relates that the pioneer medical journal of Spain appeared in 1734, and the *Siglo Médico* was founded in 1853 by the merging of the two leading journals of that day. In the ten preceding years fifty new medical journals had been founded.

April 26, 1919, **66**, No. 3411

*Inaugural Address at National Medical Congress. J. G. Ocaña.—p. 333.
Causal Indications with Morbid Constitutions. C. Calleja.—p. 336.

Inaugural Address at First National Medical Congress.—Ocaña dealt principally with the advantages for the individual physician of organization of the profession as a whole.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

April 19, 1919, **1**, No. 16

The Language of Medical Writings. V. A. Kluyver.—p. 1385.
*Medical Education in Austria. G. van Rijnberk.—p. 1389. Cont'n.
*Typhus at Amsterdam. D. Herderschée.—p. 1397.
Biologic Research. I. Vriesendorp.—p. 1403.
Brain Tumor Simulating Meningitis. G. C. Bolten.—p. 1407.

Reform in Medical Education.—Van Rijnberk has been writing a series of articles on the new trend to more practical methods in medical education. Some of the series have been abstracted in these columns. He here describes "Voices from Austria" saying that everywhere in the academic world there are ferments at work. A more practical tendency is everywhere crowding out traditional methods. The complaints from all quarters seem to be about the same, and a general revision seems impending to rejuvenate the medical course.

Typhus at Amsterdam.—Herderschée reviews a small epidemic of typhus at Amsterdam, nineteen cases, commenting on the difficulty of the differential diagnosis in some of the cases in which only the epidemiologic and the serologic elements of the case distinguished it from typhoid. No agglutination test is absolutely decisive, but the cord method, the *signe du lacet*, is important. This is a means to render the hemorrhagic tendency in the skin apparent by tying a cord around the arm. The characteristic changes in the walls of the vessels allow hemorrhages from them with this *signe du lacet*. It was positive in all the typhus cases but one, and negative in all the control cases of typhoid, except one.

Hospitalstidende, Copenhagen

May 14, 1919, **62**, No. 20

Traumatic Retroperitoneal Lymphorrhea; Two Cases. C. D. Bartels.—p. 609.
Nails and Tacks Swallowed in Attempt to Commit Suicide; Recovery. C. D. Bartels.—p. 617.

May 28, 1919, **62**, No. 22

*Diagnosis of Sclerosis in the Kidneys. V. Rubow.—p. 673.
*Cervical Ribs. T. Rovsing.—p. 679.
Modern Methods for Transfusion of Blood. O. C. Aagaard.—p. 688. Cont'n.

Diagnosis of Sclerosis in the Kidney.—Rubow comments on the fact that study of the blood may reveal retentions showing disease of the kidneys when the urine may be practically normal. As examination of the blood is a somewhat delicate procedure, he discusses the possibility of diagnosing contracted kidney even when there is no albuminuria. In his extensive experience when there had been a permanently high blood pressure, necropsy never showed any other organic affection as cause for the high blood pressure than glomerular nephritis. Even extensive arteriosclerosis does not entail a high blood pressure if the glomerular apparatus is not involved. To decide how early with glomerular nephritis the blood pressure begins to rise, he examined 39 patients in his service with permanently high pressure. Albuminuria was pronounced in 26, and the question was whether the other 13 had sound kidneys or not. None in this group had edema or manifestations of uremia. The initial symptoms in 10 had been dyspnea; in 2, pain in the heart region, and in one woman restlessness and insomnia.

The maximal pressure ranged from 190 to 235 mm. mercury during the three to five weeks they were under observation. The percentage of residual nitrogen in the blood ranged from 90 to 155 mg. with one exception, and as none of the 13 had any signs of liver disease, the conclusion is obvious that disease of the glomeruli was responsible for this abnormally high residual nitrogen figure. The one man whose blood showed only the normal content of residual nitrogen had a blood pressure of 196, and it was learned that five years before he had had an acute glomerular nephritis and he had been left with subjective heart symptoms. His high blood pressure was evidently due to the second phase of glomerular nephritis, which may stretch over many years and manifest itself only in hypertony and hypertrophy of the heart. Rubow reiterates in conclusion that there is evidently a very close connection between high blood pressure and glomerular disease. The residual nitrogen may be within normal range in the early phase. It is possible that this may continue as long as the heart does not show signs of insufficiency.

Cervical Ribs.—Rovsing gives the details of four cases in which he removed cervical ribs causing various disturbances, besides the common neuralgias, from scoliosis of the cervical spine, atrophy of muscles, and vasomotor disturbance, to aneurysm in the subclavian artery. There had been no disturbance from the anomaly until taking up wage-earning work, and cessation of work brought transient relief. In three of the cases he removed the supernumerary ribs through a posterior longitudinal incision, parallel to the spinous process, and 2 cm. from it. The rhomboid and the trapezius muscles were cut through and the splenius pushed to one side. The cervical rib can then be felt and it is easily detached and removed. A "rib-guillotine," on the principle of Mackenzie's tonsillotome, is useful. There is no hemorrhage to speak of with this technic, but its main advantage is that it avoids all danger of coming in contact with vessels or nerves. He regards this method as so harmless that practitioners and internists can confidently advise this simple and easy radical cure for disturbances from cervical ribs.